The PHOTOFACT Servicer

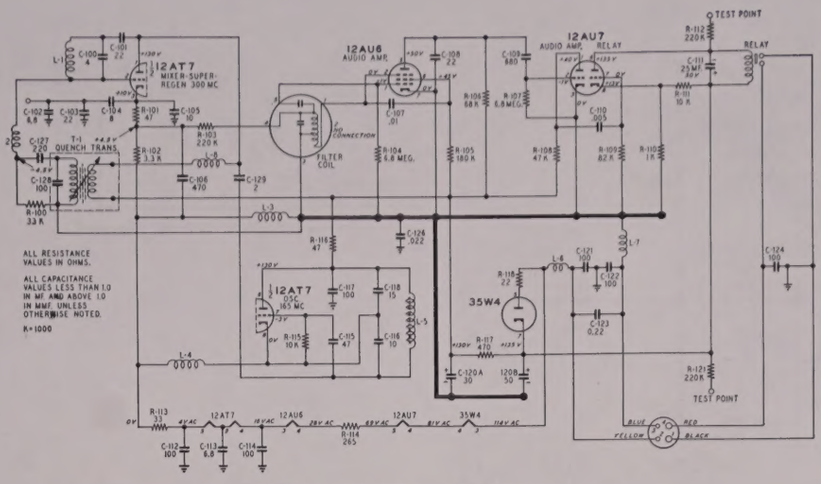
SET 415 ★ *Published for all users of Howard W. Sams' Photofact Folders* ★ OCT. 1, 1958

CONTENTS PHOTOFACT SET 415

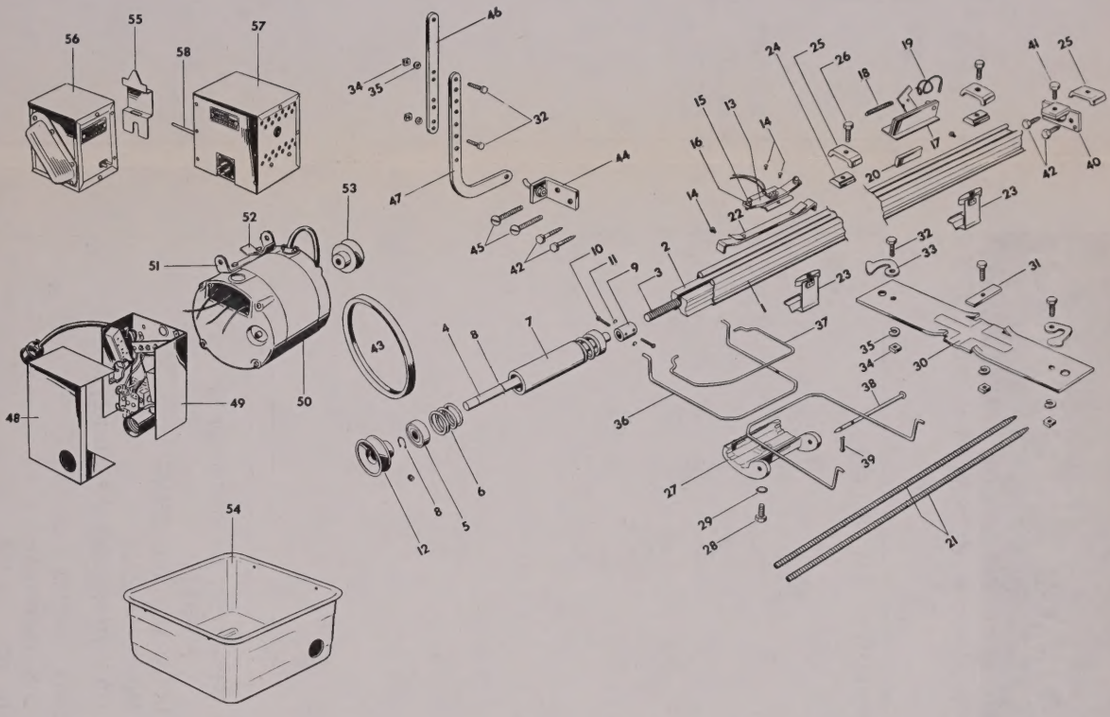
TRADE NAME AND MODEL	SET AND FOLDER NO.
TELEVISION RECEIVERS	
OLYMPIC CA105, U, CB106, U, CB107, U, CF400, U, CF401, U, KA115, U, KB116, U, KF405, U, PKA115, U, PKB116, U, TA100, U, TB101, U, 1CA96, U, 1CB97, U (Ch. GA, GAU, GB, GBU, GF, GFU)	415-1
RCA VICTOR 14PD9030, U, 14PD9033, U, 14PD9034, U, 14PT9011, U, 14PT9012, U (Ch. KCS120A, B)	415-2
TRAV-LER 721-K-671, U, 721-LP-701, U, 721-T-661, U (Ch. 743-38)	415-3
OTHER EQUIPMENT	
AMERICAN MOTORS 8990453 (83MR)	415-4
COLUMBIA RECORDS 570, 575 Tape Recorder	415-5
515, 541	415-6
GROMMES GRT-3	415-7
KNIGHT KN-632 (92SZ404)	415-8
MAGNAVOX Chassis AMP-168AA	415-9
MOPAR 854	415-10
MOTOROLA 3H24B-1, -2, 3H24S-1, -2, 3H25B, -1, 3H25M, -1 (Ch. HS-601, HS-602)	415-11
MUNTZ 802	415-12
SYLVANIA 4307 (Ch. 1-609-6)	415-13
TONFUNK W2006M, 2086M	415-14
WESTINGHOUSE HF-104DP, HF-105DP, HF-106DP, HF-117DP, HF-118DP, HF-119DP (Ch. V-2501-1)	415-15

This Servicer contains service information for
HOMART
ELECTRONIC GARAGE DOOR OPENER
MODEL 664.65121
This information is presented by the courtesy of

Sears, Roebuck & Co.
925 S. Homan Ave.
Chicago Illinois



ALTERNATE RECEIVER CIRCUIT



Do Not Use Key Numbers when ordering Repair Parts, always use Part Numbers.

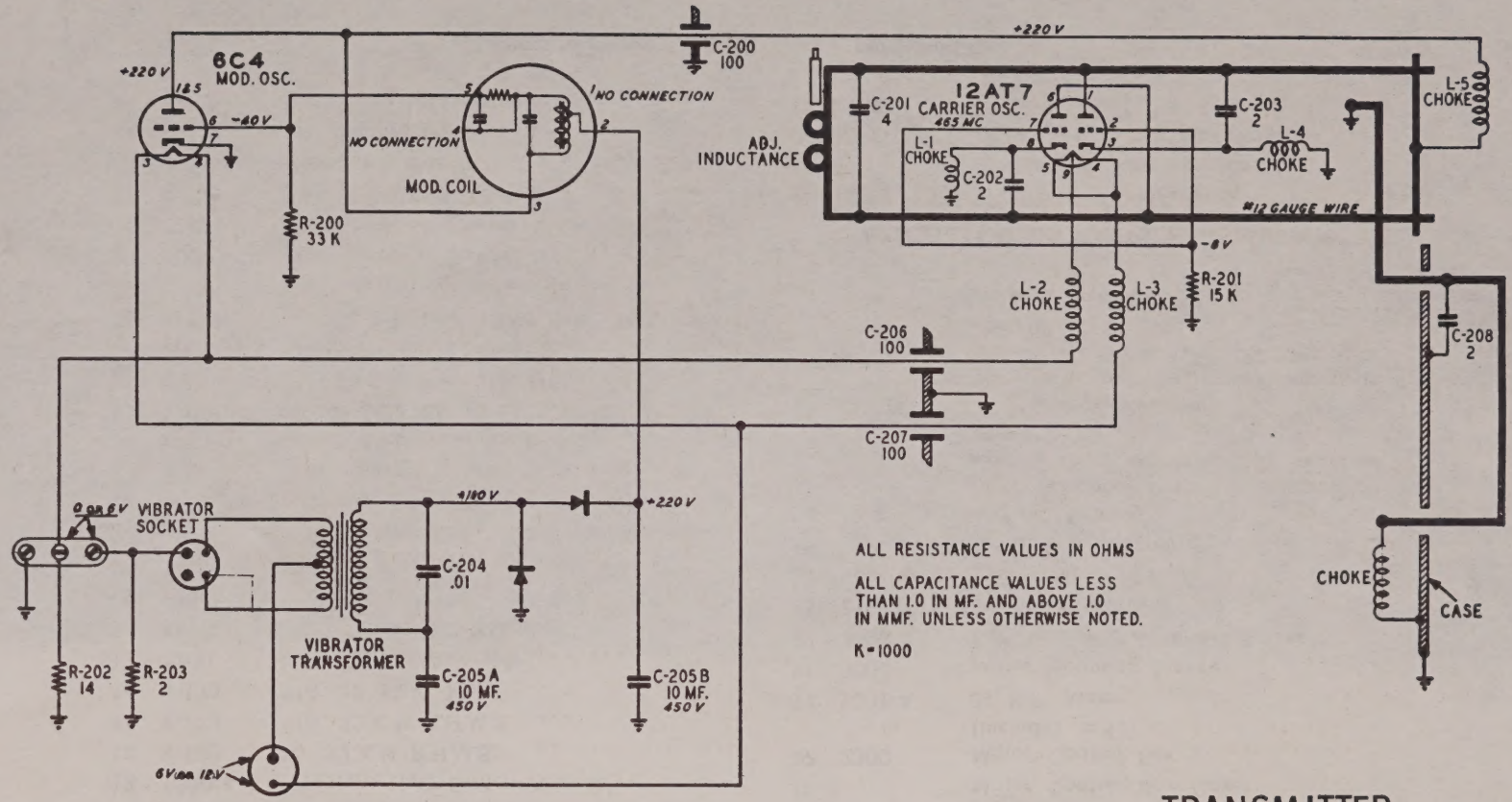
PARTS LIST

Key No.	Part No.	Description
1	1001	11 Ft. Steel Channel
2	1003	10 Ft. Wood Liner
3	1005	10 Ft. Main Screw
4	1101-A	½" Dia. Drive Shaft
5	1102-A	Ball Bearing Assembly
6	1103	Drive Loading Spring
7	1104	Drive Assembly Spacer
8	K-170	*Truarc Ring (Large)
9	1108	Drive Coupling
10	1109	Clevis Pin
11	K-163	*Truarc Ring (Small)
12	1200-A	*2" Pulley
13	1300-A	Pressure Limit Switch Assembly
14	K-100	*6 - 32 X ¼ R.H.M.S.
15	K-174	*10 - 32 X ⅜ R.H.M.S.
16	K-175	*10 - 32 Hex. Nut
17	1400	Nut Carrier Assembly
18	1407	Nut Carrier Latch Spring
19	1408	*Pull Cord
20	1409	Bronze Nut
21	1500	30" Hanger Rod
22	1600-A	Contact Bar Assembly
23	310	Sliding Limit Switch
24	1701	Fixed Stop Assembly Nut
25	1702	Fixed Stop Clamp
26	K-109	*⅜ - 16 X ⅝ Hex. Head Bolt
27	2007	Motor Mount Casting
28	K-110	*⅜ - 16 X ¾ Hex. Head Bolt
29	K-161	*⅜" Internal Tooth Lockwasher
30	3004	Rear Support Bracket
31	3105	Rear Support Clamp Plate
32	K-108	*¼ - 20 X 1 H.H.C.S.
33	3106	Hanger Rod Lock
34	K-157	*¼" Square Nut
35	K-159	*¼" Split Lockwasher
36	3007-A	Wire Cover Hanger
37	3008	Wire Radio Hanger
38	K-155	Nail (Hinge Pin)
39	K-165	*1/16" X 1 Cotter Pin
40	330	Front Support Bracket
41	K-111	*⅜ - 16 X 1 Hex. Head Bolt
42	K-115	*5/16 - 1½ Lag Screw
43	3102	*Vee Belt (Gates #1160)
44	320	Door Arm Bracket Assembly
45	K-116	*⅜ - 16 X 2 F.H.M.S.
46	3006	Hockey Stick Link
47	3005	Hockey Stick
48		Motor Control Box Cover
49	2300	Motor Control Box (Includes #48)
50	2001-A	¼ H.P. Motor
51	2002	Motor Mounting Bracket
52	2003-A	Belt Tension Adjustment Bracket
53	2101	*2" Motor Pulley
54	Special	Plastic Motor Cover
55		Transmitter Mounting Bracket
56	GT2	465 MC Transmitter Note: Channel number is stamped on side of case, example, "T2" indicates channel 2
57	GR-3A	465 MC Radio Receiver Note: Channel number is stamped on side of case, example, "R2" indicates channel 2
58		Antenna Rod for GR-3A

MISCELLANEOUS PARTS NOT SHOWN

Part No.	Description
2A463	Car Push Button Switch
25X2012	Bracket, Switch Mounting
S38A109	Connector Cable Assembly for GT2

*Standard Hardware Item—May be purchased locally.



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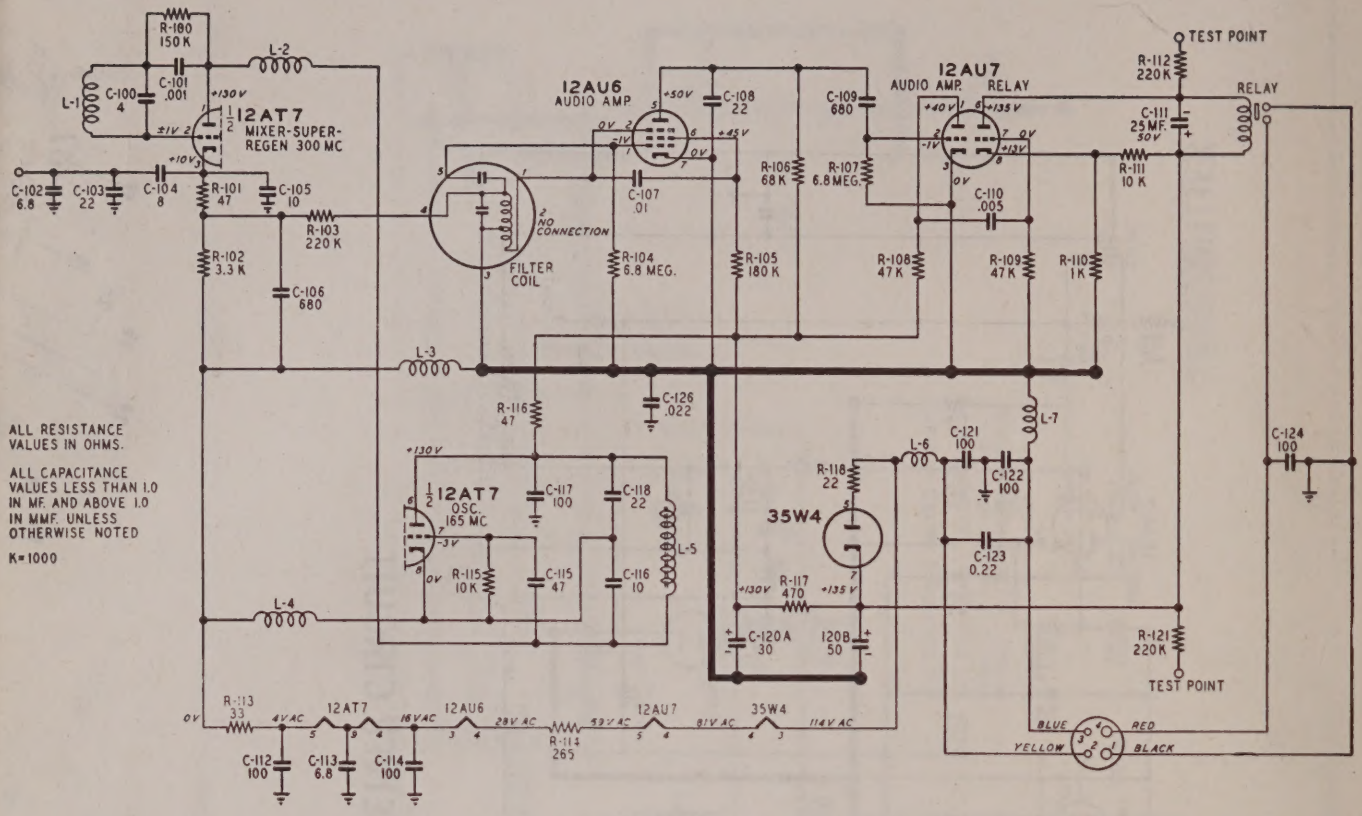
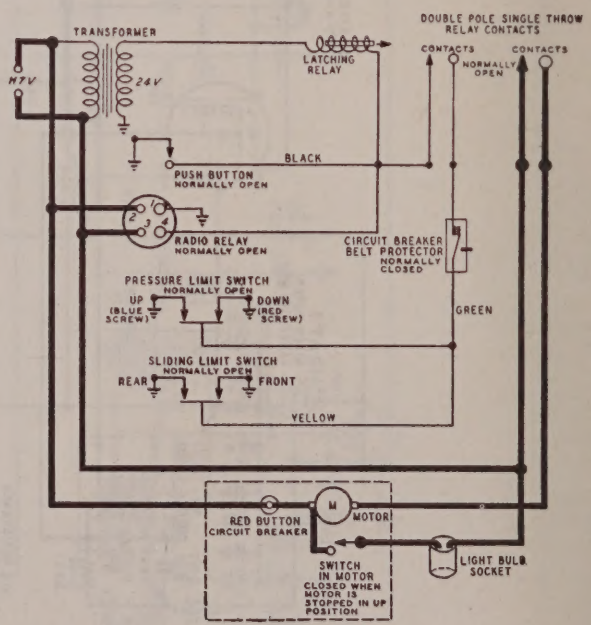


ALL RESISTANCE VALUES IN OHMS.

ALL CAPACITANCE VALUES LESS THAN 1.0 IN MF. AND ABOVE 1.0 IN MMF. UNLESS OTHERWISE NOTED

K=1000

RECEIVER



OLYMPIC MODELS CA105, U, CB106, U, CB107, U, CF400, U, CF401, U, KA115, U, KB116, U, KF405, U, PKA115, U, PKB116, U, TA100, U, TB101, U, 1CA96, U, 1CB97, U (Ch. GA, GAU, GB, GBU, GF, GFU)

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 8 push-on type knobs from the front.
2. Remove 2 wood screws holding the rear cover and remove the rear cover.
3. Remove the picture tube socket, ground strap, yoke plug, HV lead and speaker leads.
4. Remove 1 top chassis support bolt.
5. Remove 3 bottom chassis bolts.
6. Remove the chassis.

MODEL TB101U (CH.GBU)

TRADE NAME	Olympic	MODELS	CHASSIS
		CA105, KA115, PKA115, TA100, 1CA96	GA
		CA105U, KA115U, PKA115U, TA100U, 1CA96U	GAU
		CB106, CB107, KB116, PKB116, TB101, 1CB97	GB
		CB106U, CB107U, KB116U, PKB116U, TB101U, 1CB97U	GBU
		CF400, CF401, KF405	GF
		CF400U, CF401U, KF405U	GFU
MANUFACTURER	Olympic Radio & Television Inc., 34-01 38th. Avenue, Long Island City, 1, N.Y.		
TYPE SET	Television Receiver		
TUBES	Sixteen		
POWER SUPPLY	110-120 Volts AC, 60 Cycle	RATING 150 Watts, 1.42 Amp. @ 117 Volts AC	
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

MODELS KF405, U USE RECORD CHANGER RX4298. FOR SERVICE INFORMATION SEE SIMILAR UNIT IN PHOTOFACT SET 353 FOLDER 16. MODELS KA115, U, KB116, U USE RECORD CHANGER #RX5212. FOR SERVICE INFORMATION SEE SIMILAR UNIT IN PHOTOFACT SET 381 FOLDER 11.

OLYMPIC MODELS CA105, U, CB106, U, CB107, U, CF400, U, CF401, U, KA115, U, KB116, U, KF405, U, PKA115, U, PKB116, U, TA100, U, TB101, U, 1CA96, U, 1CB97, U (Ch. GA, GAU, GB, GBU, GF, GFU)

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF Oscillator is possible by removing the rear cover and supplying power to the receiver. The adjustments are located in the top of the tuner at the rear. Three holes provide access to the Mixer Plate Coil, High Band adjustment and Low Band adjustment from left to right as viewed from the rear. Set the Fine Tuning at center of its range. Adjust the High Band and Low band channels in sequence for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

Remove the trim strip at the top edge of the safety glass. Tilt glass out at the top and lift up to remove.

SPECIAL ADJUSTMENTS

A. Focus
The focus may be varied by the position of a strap on the base of the Picture Tube. The strap can be connected between pins 6 and 10, or 6 and 1. Readjust the Ion Trap for the best focus consistent with maximum brightness.

B. Height & Vertical Linearity
These controls are accessible by removing the Channel Selector and Fine Tuning knobs.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

For adjustment of the Horizontal Oscillator, it is necessary to remove the rear cover and supply power to set. Set the Horizontal Hold at the center of its range and adjust the Horzontal Frequency slug (B1) until the picture synchronizes horizontally. (For location, see tube placement chart.)

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate intercarrier buzz, adjust the Buzz Control for MINIMUM buzz and maximum sound. (For location, see tube placement chart.)

FUSES

One fuse is used for horizontal sweep circuit protection and 2 fuse wires for LV power supply and filament protection.

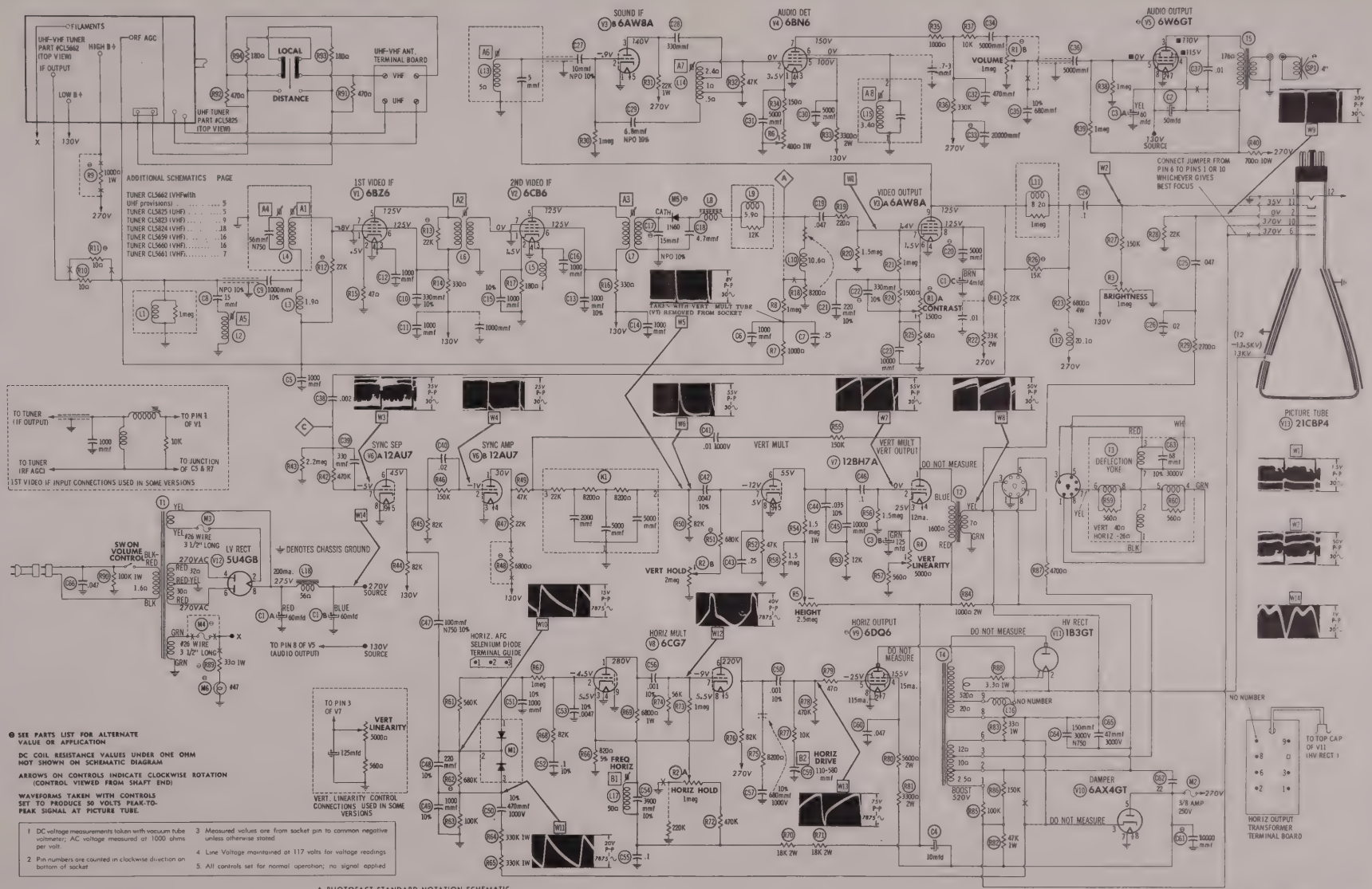
CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of H700

the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America



● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltage measured at 1000 ohms per volt.
2. Pin numbers are counted in clockwise direction on bottom of socket
3. Measured values are from socket pin to common negative unless otherwise stated
4. Line Voltage maintained at 117 volts for voltage readings
5. All controls set for normal operation; no signal applied

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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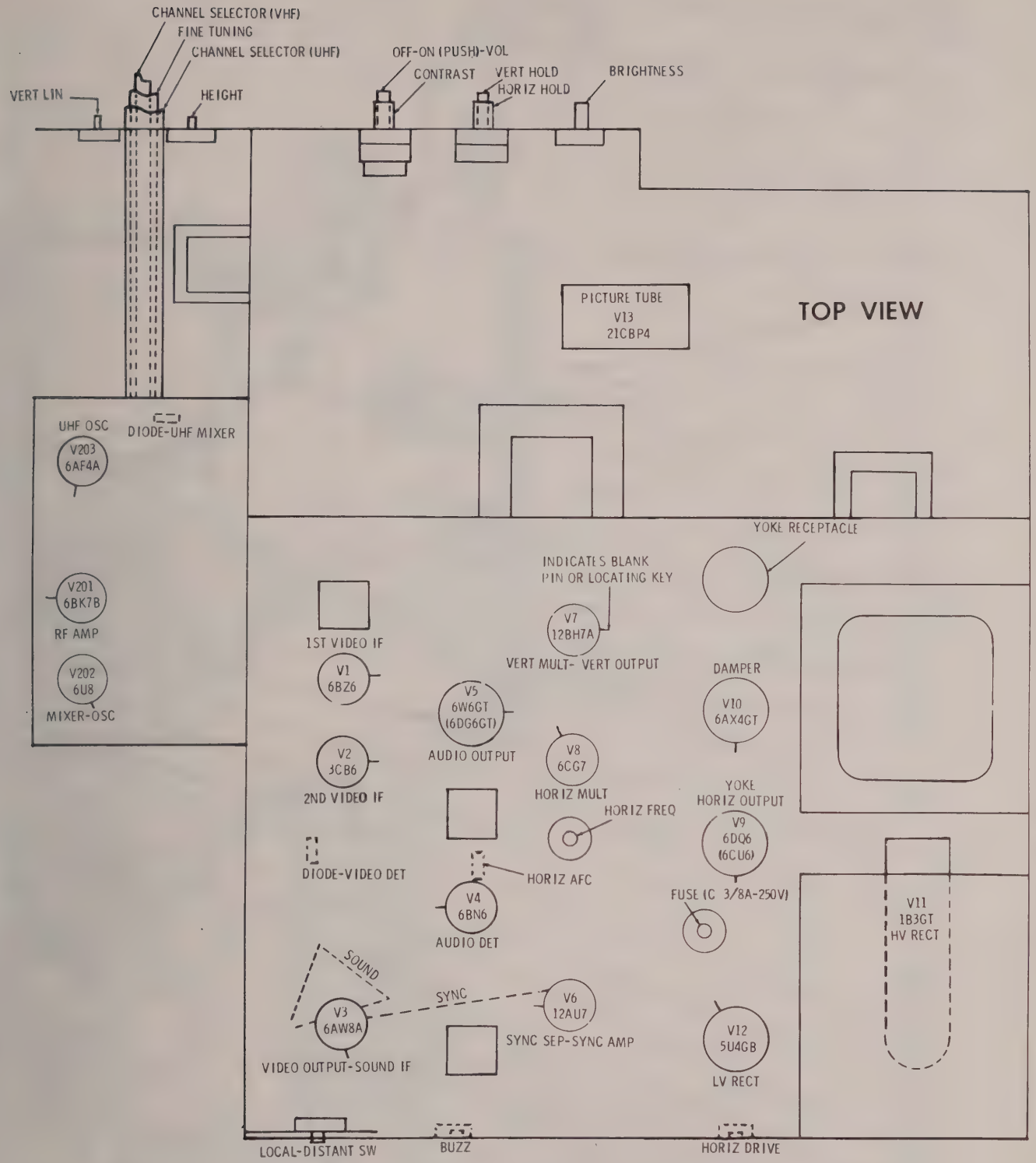
OLYMPIC MODELS CA10S, U, CB106, U, CB107, U, CF400, U, CF401, U, KA115, U, KB116, U, KF40S, U, PKA115, U, PKB116, U, TA100, U, TB101, U, 1CA96, U, 1CB97, U (Ch. GA, GAU, GB, GBU, GF, GFU)

U, KA115, U, KB116, U, KF40S, U, PKA115, U, PKB116, U, TA100, U, TB101, U, 1CA96, U, 1CB97, U (Ch. GA, GAU, GB, GBU, GF, GFU)

FOLDER 1

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound Fuse (M3, M4), V12

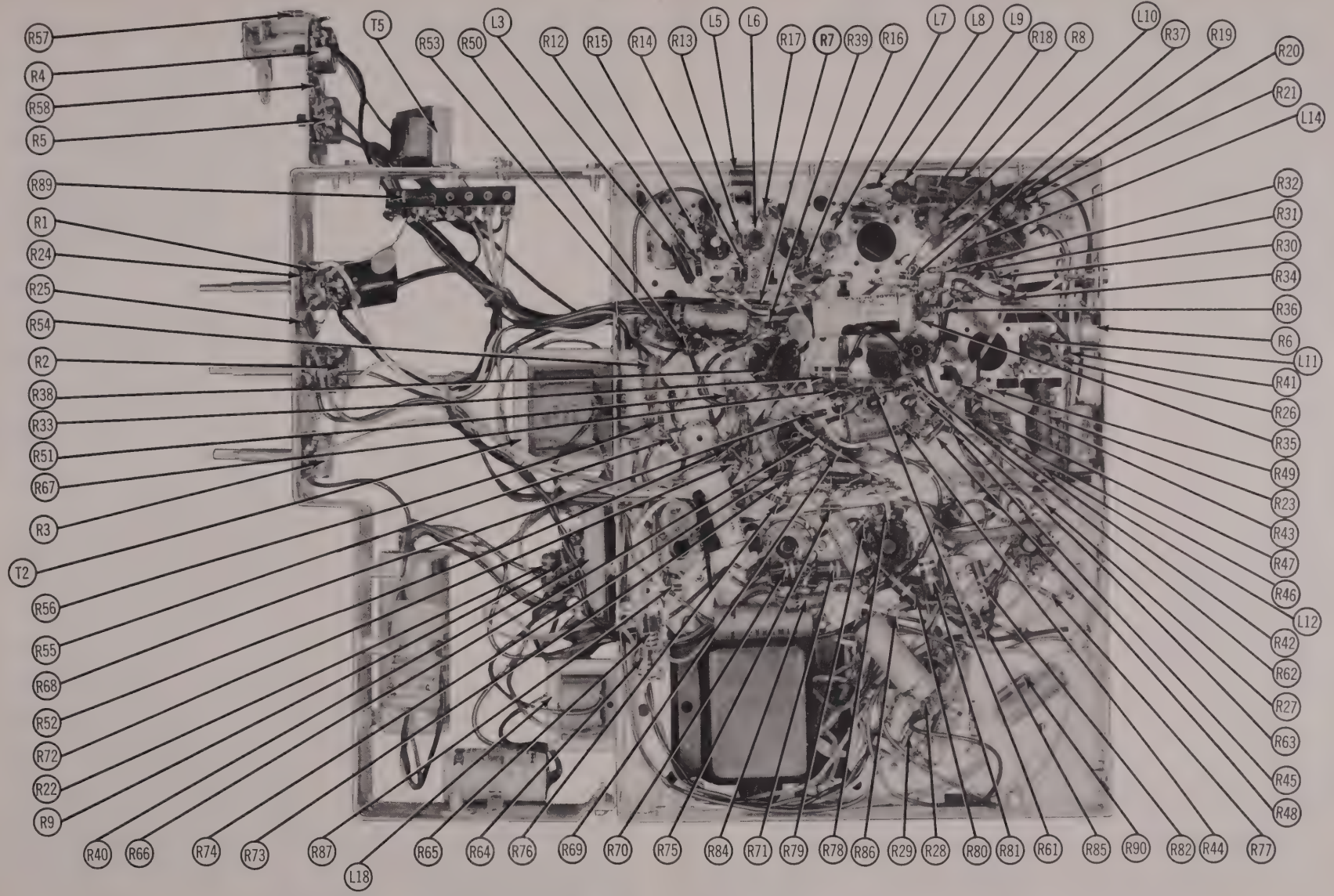
SWEEP FAILURE
No raster, has sound Fuse (M2), Rectifier (M1), V8, V9, V10, V11, V13
No vertical deflection V7
Poor vert. linearity or foldover V7
Poor horiz. linearity or foldover V8, V9, V10
Narrow picture V8, V9, V10, V12
Vert. off freq. V7
Horiz. off freq. V8

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, Diode (M5), V3
No pic, no sound, has snow V201, V202, (V203 UHF only)
No pic, has sound, has raster V3, V13
Has pic, no sound V3, V4, V5

SYNC FAILURE
No vert. sync V6
No horiz. sync V6, M1
No vert. or horiz. sync V6

OLYMPIC MODELS CA105, U, CB106, U, CB107, U, CF400, U, CF401, U, KA115, U, KB116, U, KF405, U, PKA115, U, PKB116, U, TA100, U, TB101, U, 1CA96, U, 1CB97, U (Ch. GA, GAU, GB, GBU, GF, GFU)

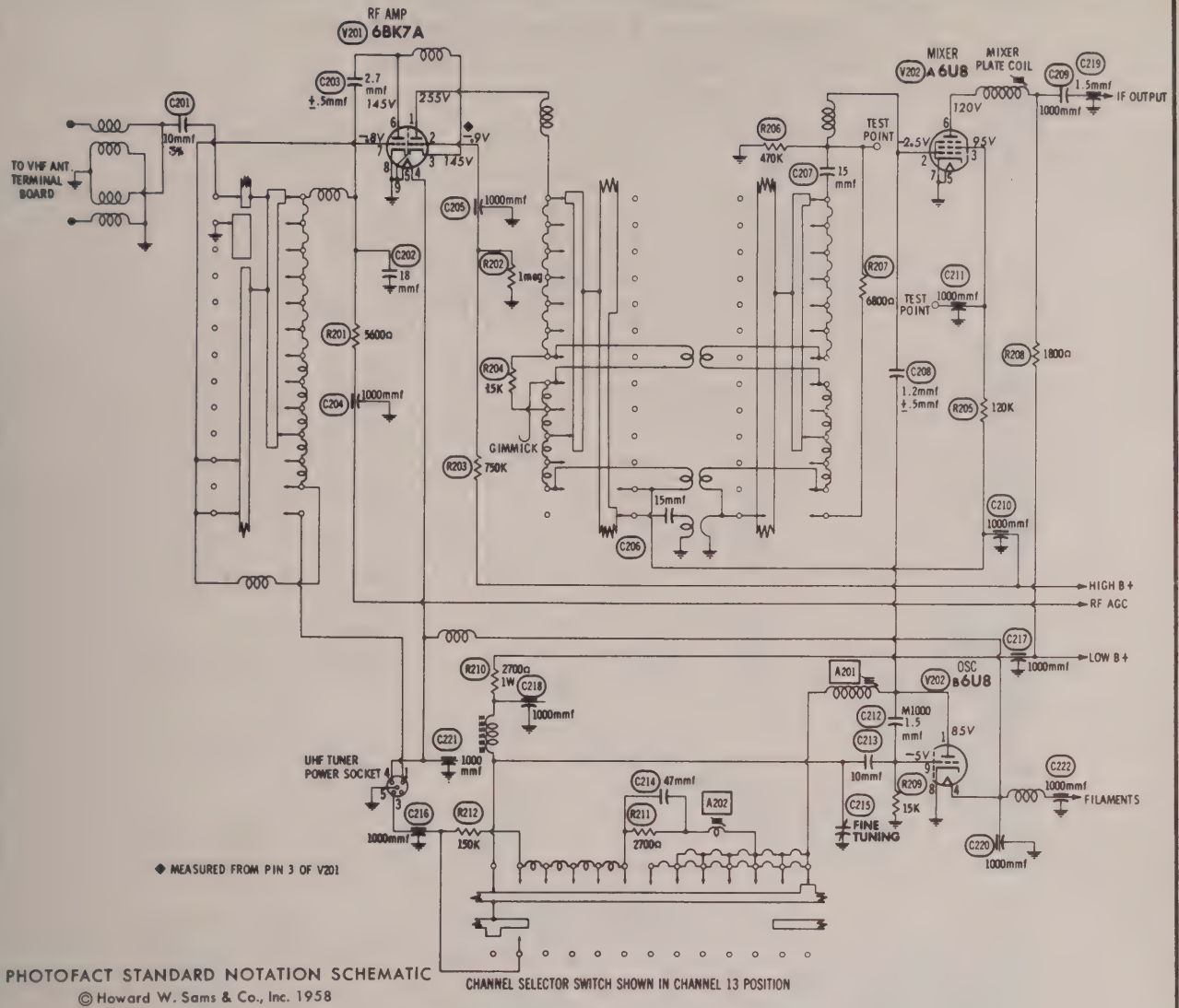
FOLDER 1



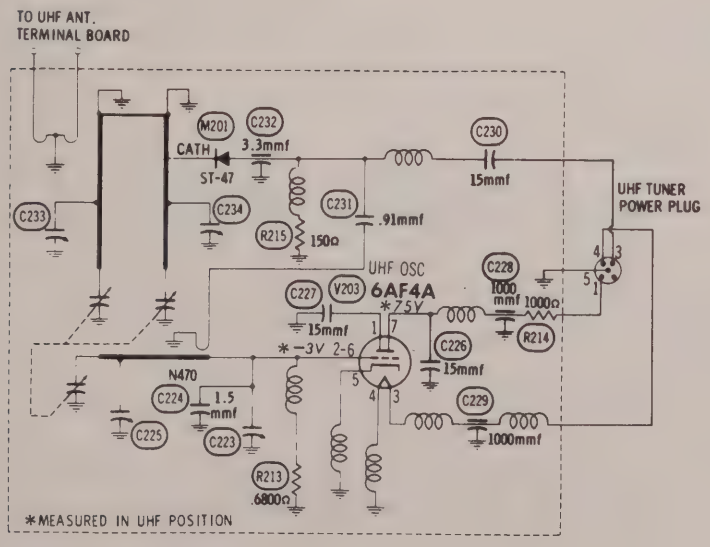
CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

OLYMPIC MODELS CA105, U, CB106, U, CB107, U, CF400, U, CF401, U, KA115, U, KB116, U, KF405, U, PKA115, U, PKB116, U, TA100, U, TB101, U, 1CA96, U, 1CB97, U (Ch. GA, GAU, GB, GBU, GF, GFU)

FOLDER 1



VHF W/UHF PROVISIONS TUNER #CL5662



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UHF TUNER #CL5825

OLYMPIC MODELS CA105, U, CB106, U, CB107, U, CF400, U, CF401, U, KA115, U, KB116, U, KF405, U, PKA115, U, PKB116, U, TA100, U, TB101, U, 1CA96, U, 1CB97, U (Ch. GA, GAU, GB, GBU, GF, GFU)

FOLDER 1

TUNER CL5662–CL5825
PARTS LIST AND DESCRIPTIONS
TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V201	RF Amp.	6BK7B	
V202	Mixer-Osc.	6U8	

ITEM No.	USE	TYPE	NOTES
V203	UHF Osc.	6AF4A	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	OLYMPIC PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C201	10				TCZ-10				5%
C202	18			DI 18	DD-180	L10Q18	UC-5418	5GA-Q18	
C203	2.7								±.5mmf
C204	1000			EF-001	MFT-1000			503C-D1	
C205	1000			EF-001	MFT-1000			503C-D1	
C206	15			BPD-000015	DD-150	L10Q15	UC-5415	5GA-Q15	
C207	15			BPD-000015	DD-150	L10Q15	UC-5415	5GA-Q15	
C208	1.2								±.5mmf
C209	1000			BPD-001	DD-102	BYA6D1	DC521	5HK-D1	
C210	1000			EF-001	MFT-1000			503C-D1	
C211	1000			EF-001	MFT-1000			503C-D1	
C212	1.5								N1000
C213	10			BPD-00001	DD-100	L10Q1	UC-541	5GA-Q1	
C214	47			BPD-000047	DD-470	L10Q47	UC-5447	5GA-Q47	
C215									
C216	1000			EF-001	MFT-1000			503C-D1	
C217	1000			EF-001	MFT-1000			503C-D1	
C218	1000			EF-001	MFT-1000			503C-D1	
C219	1.5								
C220	1000			EF-001	MFT-1000			503C-D1	
C221	1000			EF-001	MFT-1000			503C-D1	
C222	1000			EF-001	MFT-1000			503C-D1	
C223									
C224	1.5								N470
C225									
C226	15								
C227	15								
C228	1000			EF-001	MFT-1000			503C-D1	
C229	1000			EF-001	MFT-1000			503C-D1	
C230	15			BPD-000015	DD-150	L10Q15	UC-5415	5GA-Q15	
C231	.91								
C232	3.3								
C233									
C234									

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		OLYMPIC PART No.	NOTES
	OHMS	WATT		
R201	5600Ω			
R202	1meg			
R203	750K			
R204	15K			
R205	120K			
R206	470K			
R207	6800Ω			
R208	1800Ω			

ITEM No.	RATING		OLYMPIC PART No.	NOTES
	OHMS	WATT		
R209	15K			
R210	2700Ω	1		
R211	2700Ω			
R212	150K			
R213	6800Ω			
R214	1000Ω			
R215	150Ω			

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		OLYMPIC PART No.	CBS PART No.	SYLVANIA PART No.	
M201	ST-47		1N82A	1N82A	UHF Mixer (Clip-in)

TUNER ALIGNMENT INSTRUCTIONS

TUNER #CL5662

VHF OSCILLATOR ALIGNMENT

Set the fine tuning to the center of its range (flat of fine tuning shaft is at right angles to top of tuner). Set the Channel Selector to the highest high band channel (13-7) operating in the area. Adjust the high band oscillator adjustment slug (A201) for best picture and sound. Switch Channel Selector to the highest low band channel (6-2) operating in the area and adjust the low band oscillator adjustment(A202) for best picture and sound. Recheck high band adjustment.

VHF RF AND MIXER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

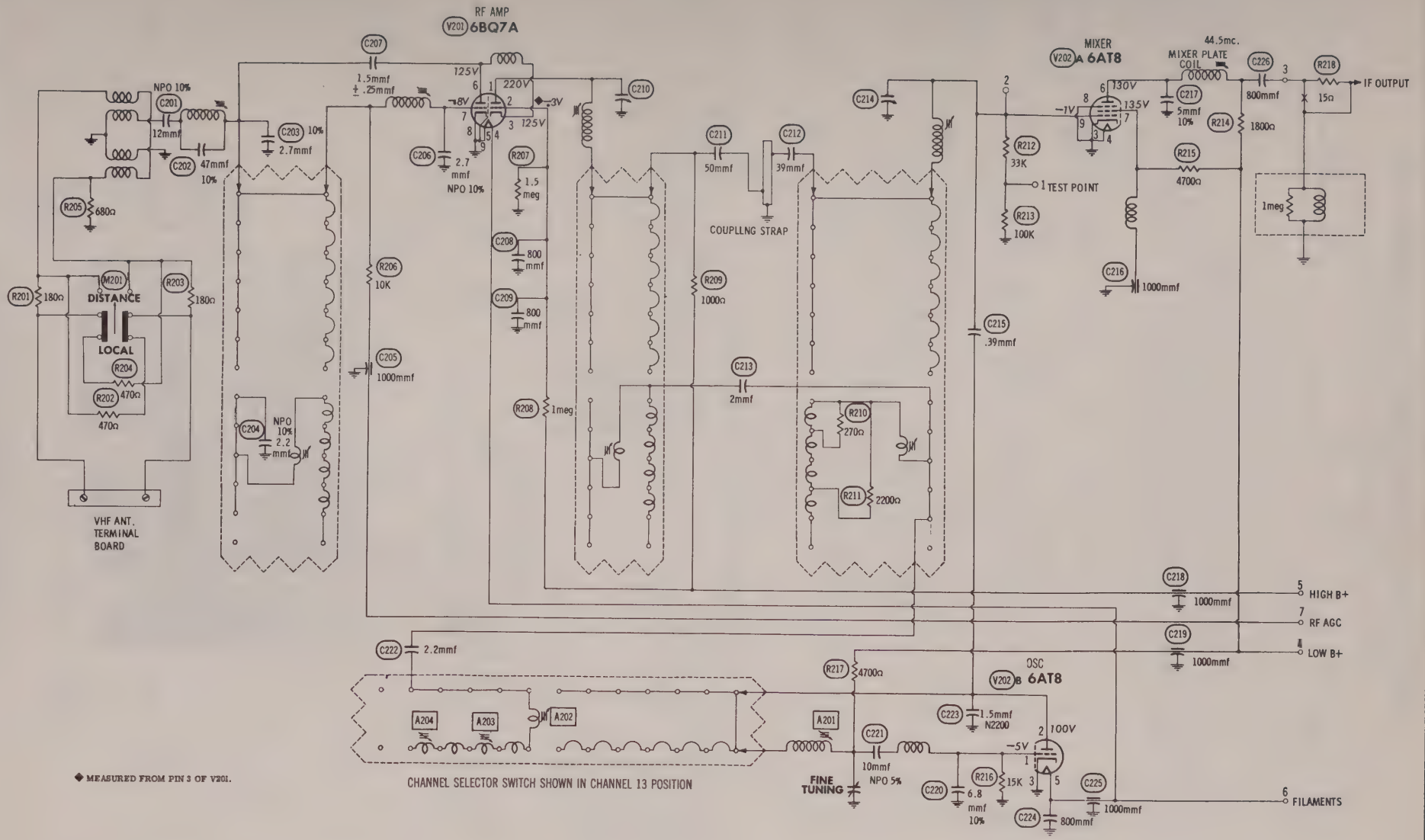
UHF TUNER DIAL ALIGNMENT

Turn the VHF tuner to UHF position and turn the fine tuning (UHF tuning) fully counterclockwise. Remove the VHF Channel Selector and Fine Tuning knobs and the UHF dial, but do not turn shaft. Replace the UHF dial so that the number 80 will be visible thru the UHF window in the VHF Channel Selector knob. Replace the Fine Tuning and VHF Channel Selector knobs.

UHF TUNER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

CONTINUED ON PAGE 9



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VHF TUNER #CL5661

OLYMPIC MODELS CA105, U, CB106, U, CB107, U, CF400, U, CF401, U, KA115, U, KB116, U, KF405, U, PKA115, U, PKB116, U, TA100, U, TB101, U, 1CA96, U, 1CB97, U (Ch. GA, GAU, GB, GBU, GF, GFU)

TUNER #CL5661 PARTS LIST & DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V201	RF Amplifier	6BQ7A	

ITEM No.	USE	TYPE	NOTES
V202	Mixer-Osc.	6AT8A	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	OLYMPIC PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C201	12			NPO-DI 12	TCZ-12	C10Q12C	TCO-12			NPO 10%
C202	47			NPO-DI 47	DD-470	L10Q47	ED-47		MS-447	10%
C203	2.7									10%
C204	2.2									NPO 10%
C205	1000			EF-001	MFT-1000				503C-D1	
C206	2.7									NPO 10%
C207	1.5				TCZ-1R5		TCO-1.5			±.25mmf
C208	800			BPD-0008	DD-801	L10T8	ED-0008		5GA-T8	
C209	800			BPD-0008	DD-801	L10T8	ED-0008		5GA-T8	
C210										
C211	50			DI -00005	DD-500	L10Q5	ED-50	UC-545	5GA-Q5	
C212	39			DI-000039	DD-390	L10Q39	ED-39	UC-5439	5GA-Q39	
C213	2					C10V2C				
C214										
C215	.39									
C216	1000			EF-001	MFT-1000				503C-D1	
C217	5			NPO-DI 5	DD-050	L10V5	ED-5	ZT-555	5TCCB-V5	10%
C218	1000			EF-001	MFT-1000				503C-D1	
C219	1000			EF-001	MFT-1000				503C-D1	
C220	6.8			NPO-DI 6.8	DTZ-6R8	L10V68	TCO-6.8	ZT-5568	5TCCB-V68	10%
C221	10			NPO-DI 5	DTZ-10		TCO-10			NPO 5%
C222	2.2			NPO-SI 2.2	TCZ-2R2	CTA6V22C	TCO-2.2		5TCCB-V22	
C223	1.5									N2200
C224	800			BPD-0008	DD-801	L10T8	ED-0008		5GA-T8	
C225	1000			EF-001	MFT-1000				503C-D1	
C226	800			BPD-0008	DD-801	L10T8	ED-0008		5GA-T8	

RESISTORS

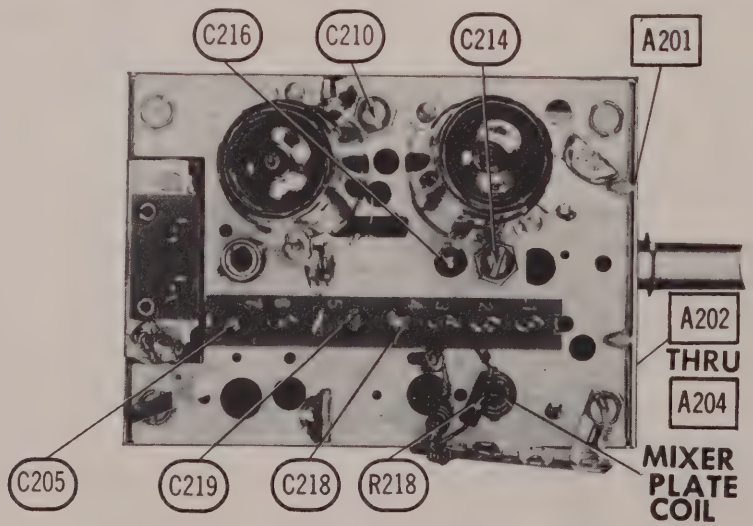
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		OLYMPIC PART No.	NOTES
	OHMS	WATT		
R201	180Ω			
R202	470Ω			
R203	180Ω			
R204	470Ω			
R205	680K			
R206	10K			
R207	1.5meg			
R208	1meg			
R209	1000Ω			

ITEM No.	RATING		OLYMPIC PART No.	NOTES
	OHMS	WATT		
R210	270Ω			
R211	2200Ω			
R212	33K			
R213	100K			
R214	1800Ω			
R215	4700Ω			
R216	15K			
R217	4700Ω			
R218	15Ω			

MISCELLANEOUS

ITEM No.	PART NAME	OLYMPIC PART No.	NOTES
M201	Switch	SW2966-1	Distant-Local, DPDT, Slide type



TUNER #CL5661 - TOP VIEW

TUNER ALIGNMENT INSTRUCTIONS

CL 5659 – CL 5661 – CL 5823 – CL 5824 – CL 5660

TUNER #CL5659, CL5661, CL5823, CL5824

VHF OSCILLATOR ALIGNMENT

Channel 13 oscillator adjustment slug (A201) is also used for adjusting the other high band channels 12 thru 7. Channel 6 oscillator adjustment slug (A202) is also adjusted for channel 5. Channel 4 oscillator adjustment (A203) is also adjusted for channel 3. Channel 2 oscillator slug (A204) is used for channnel 2 only.
Turn the set on and tune in the highest high band channel and adjust controls for normal operation. Set the fine tuning to the center of its range. Adjust A201 for best picture and sound. Switch to the next high band channel. If necessary to adjust, do so by bending coil loop appearing at the hole to left of tuner shaft. Adjust for best picture and sound. Check adjustment of all high band channels in descending order. Switch channel selector to the highest low band channel 6 thru 2 operating in the area. Adjust proper slug for best picture and sound. If channel 5 or 3 require adjusting, it will be necessary to switch to the next higher channel, adjust slug SLIGHTLY, then switch back to the channel needing adjustment and check picture. Repeat until proper results are obtained. Repeat procedure until all channels operating in the area have been properly adjusted.

RF AND MIXER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

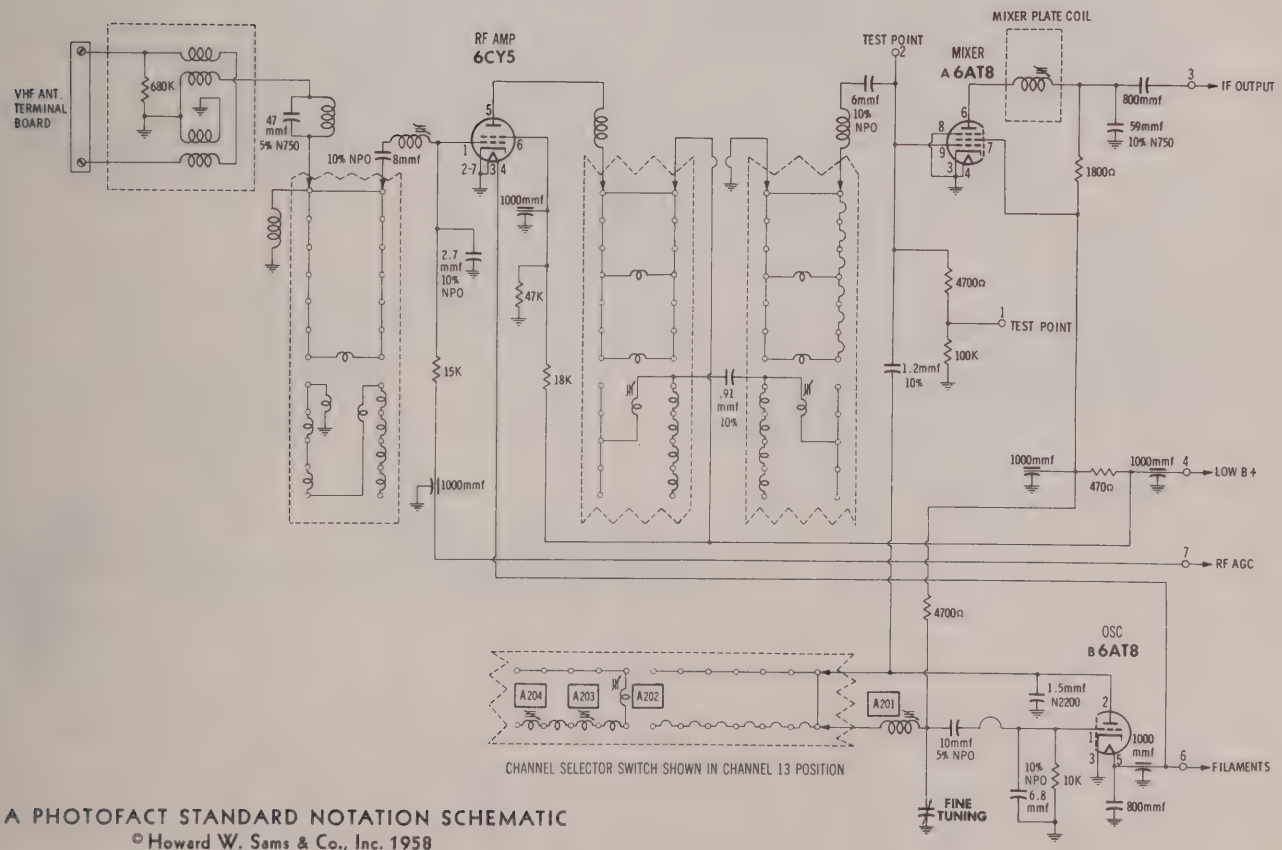
TUNER #CL5660

OSCILLATOR ALIGNMENT

Turn the set on and tune in the highest channel operating in the area. Set the fine tuning to the center of its range. Adjust A201 for best picture and sound. Check all other channels operating in the area. If necessary, make compromise adjustment of A201 for best picture and sound on all channels.

RF AND MIXER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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OLYMPIC MODELS CA105, U, CB106, U, CB107, U, CF400, U, CF401, U, KA115, U, KB116, U, KF405, U, PKA115, U, PKB116, U, TA100, U, TB101, U, 1CA96, U, 1CB97, U (Ch. GA, GAU, GB, GBU, GF, GFU)

FOLDER 1

VHF TUNER CL 5823

SET 415 FOLDER 1

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Disable the Horizontal Sweep by removing V8 and V9.

VIDEO IF ALIGNMENT

Connect the negative lead of a 3 volt bias supply to point Ⓑ. Positive to chassis.
Use lowest negative scale on VTVM.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to ungrounded tube shield floating over Mixer-Osc. tube (V202). Low side to chassis.	43.5MC (Ch. GB,GBU GF,GFU) 44.5MC (Ch. GA, GAU)	Any non-interfering channel	DC probe thru 100K to point Ⓐ. Common to chassis. (Across Video Det. load)	Mixer Plate Coil	Adjust for maximum deflection. Use only enough generator output to provide a usable indication on VTVM.
	"	"	45.5MC (Ch. GB,GBU GF, GFU) 44.5MC) (GA, GAU)	"	"	A1	"
3.	"	"	43.5MC	"	"	A2	"
4.	"	"	45.5MC	"	"	A3	"
5.	"	"	47.25MC (Ch. GB,GBU GF, GFU)	"	"	A4, A5	Increase generator output and adjust A4 and A5 for MINIMUM deflection.

OVERALL VIDEO IF RESPONSE CHECK

Connect bias as under "Video IF Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	Direct	High side to ungrounded tube shield floating over Mixer-Osc. tube (V202). Low side to chassis.	44.0MC (10MC Swp)	43.25MC 45.75MC	Any non-interfering channel	Vert. Amp. thru detector probe (Fig.1) to pin 5 (plate) of 1st. Video IF Amp. (V1). Low side to chassis.		Check for response curve similar to Fig. 2. If necessary, retouch Mixer Plate Coil and A1 for desired response.
7.	"	"	"	43.25MC 45.75MC 47.25MC (47.25MC on Ch. GB, GBU, GF, GFU only)	"	Vert. Amp. thru 100K to point Ⓐ. Low side to chassis. (Across Video Detector load)		Check for response similar to Fig. 3 with markers as indicated. If necessary, retouch Mixer Plate Coil, A1, A2 and A3 for desired response.

SOUND IF ALIGNMENT

Turn the set on and tune in a very weak signal. Set the Buzz Control (R6) at the center of its range. Connect the DC probe of a VTVM thru a crystal detector probe to poin 3 (plate) of the 6AW8A (V3). Common to chassis.
Adjust A6 and A7 for maximum deflection on VTVM. Disconnect the VTVM and detector probe. Adjust A8 for maximum undistorted sound.
Adjust the Buzz Control for MINIMUM buzz.

TUNER ALIGNMENT INSTRUCTIONS LOCATED ON PAGES 6 & 9.

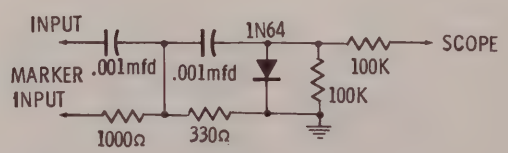


FIG. 1

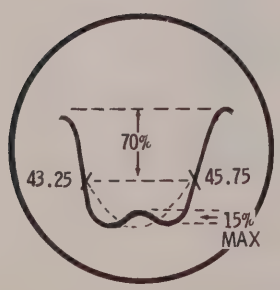


FIG. 2

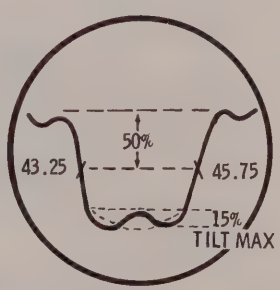


FIG. 3

CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

OLYMPIC MODELS CA105, U, CB106, U, CB107, U, CF400, U, CF401, U, KA115, U, KB116, U, KF405, U, PKA115, U, PKB116, U, TA100, U, TB101, U, 1CA96, U, 1CB97, U (Ch. GA, GAU, GB, GBU, GF, GFU)

FOLDER 1

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	1st. Video IF Amp.	6BZ6	
V2	2nd. Video IF Amp.	6CB6	
V3	Video Output-Sound IF Amp.	6AW8A	
V4	Audio Det.	6BN6	
V5	Audio Output	6W6GT	*6DG6GT
V6	Sync Sep. -Sync Amp.	12AU7	

ITEM No.	USE	TYPE	NOTES
V7	Vert. Mult. - Vert. Output	12BH7A	
V8	Horiz. Mult.	6CG7	
V9	Horiz. Output	6DQ6	*6CU6
V10	Damper	6AX4GT	
V11	HV Rect.	1B3GT	
V12	LV Rect.	5U4GB	

* Alternate.

PICTURE TUBE

ITEM No.	REPLACEMENT DATA				NOTES
	OLYMPIC PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	SYLVANIA PART No.	
V13	21CBP4		21CBP4-A ①	21CBP4/ ②	① "Silverama" ③ ② "Silver Screen 85"
	24AEP4		24AEP4 ③	21CBP4A ③	

ELECTROLYTIC CAPACITORS

ITEM No	RATING		REPLACEMENT DATA						
	CAP	VOLT	OLYMPIC PART No	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No	PYRAMID PART No	SANGAMO PART No.	SPRAGUE PART No.
C1A	60	350	CO-3380-1	PR3-025	BBRT0235	WT460		D-190	R2510 *
B	60	350						MT-4504	
C	4	350							
C2	50	250	CO-2068-3	PR8250V50	BR5025	TC59	TD-50-450	FM-4550	TVA-1713
C3A	60	200	CO-3856	DG2-160	BBRD0587	WD340		T-317	R2064 *
B	125	50						MT-05100	
C4	10	450	CO-4022-2	PR8450V10	[illegible]	TC72	TD-10-450	FM-4510	TVA-1706

* Non-catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	OLYMPIC PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C5	1000		CCD102M	BPD-001	DD-102	BYA6DA	DC521	5HK-DA	
C6	1000		CCD102M	BPD-001	DD-102	BYA6DA	DC521	5HK-DA	
C7	.39	200		P388N-35		CUB2P25	GEM-3025	2TM-P25	
C8	15		CCD150K	NPO-DI 15	DTZ-10	CI0QI5C		5TCC-Q15	NPO 10%
C9	1000		CCD102M	BPD-001	DD-102	BYA6DA	MCB255	MS-2I	10%
C10	330		CCD331K		D6-331	LI0T33		MB-333	10%
C11	1000		CCD102M	BPD-001	DD-102	BYA6DA	DC521	5HK-DA	
C12	1000		CCD102M	BPD-001	DD-102	BYA6DA	DC521	5HK-DA	
C13	1000		CO-4837			IR5DA	MCB255	MS-2I	10%
C14	1000		CCD102M	BPD-001	DD-102	BYA6DA	DC521	5HK-DA	
C15	1000		CO-4837			IR5DA	MCB255	MS-2I	10%
C16	1000		CCD102M	BPD-001	DD-102	BYA6DA	DC521	5HK-DA	
C17	15		CCD150K	NPO-DI 15	DTZ-15	CI0QI5C		5TCC-Q15	NPO 10% ①
C18	4.7		CO-1083	NPO-SI 4.7	TCZ-4R7	CTA8V47C	ZT-5547	5TCCB-V47	
C19	.047	400	CO-H-4473	P488N-047	DF-503	CUB6S47	GEM-4147	4TM-S47	
C20	5000			BPD-008	DD-502	BYA10DS	DC525	5HK-D5	②
C21	220		CCD221K		D6-221	LI0T22		MS-322	10%
C22	330		CCD331K		D6-331	LI0T33		MS-333	10% ②
C23	10000		CCD103M	BPD-01	DD-103	BYA6SI	DC511	5HK-SI	
C24	.1	400	CO-H-4104	P488N-1	DF-104	CUB4P1	GEM-4101	4TM-P1	
C25	.047	400	CO-H-4473	P488N-047	DF-503	CUB6S47	GEM-4147	4TM-S47	
C26	.02	400	CO-H-4203	P488N-02	DF-203	CUB6S23	GEM-4123	4TM-S23	
C27	10		CCD100K	NPO-DI 10	DTZ-10	CI0QIC	ZT-541	5TCC-Q1	NPO 10%
C28	330		CCD331M	BPD-00033	DD-331	LI0T33	UC-5333	5GA-T33	
C29	8.8		CO-4417	NPO-DI 8.8	DTZ-8R8	CTA8V88C	ZT-5588	5TCCB-V88	NPO 10%
C30	5000		CCD502K	BPD-005	DD-502	BYA10DS	DC525	5HK-D5	
C31	5000		CCD502K	BPD-005	DD-502	BYA10DS	DC525	5HK-D5	
C32	470		CCD471M	BPD-0047	DD-471	BYA10T47	UC-5347	5GA-T47	
C33	30000			BPD-03	DD-303	BYB6S2		5HK-S2	③
C34	5000		CCD502K	BPD-005	DD-502	BYA10DS	DC525	5HK-D5	
C35	680				D6-681	LI5T68		MB-368	10%
C36	5000		CCD502K	BPD-005	DD-502	BYA10DS	DC525	5HK-D5	
C37	.01	800	CO-B-4103	P488N-01	D6-103	CUB6SI	GEM-611	6TM-S1	
C38	.003	800	CO-H-4302	P488N-003	D6-302	CUB6D2	GEM-622	6TM-D2	
C39	330		CCD331M	BPD-00033	DD-331	LI0T33	UC-5333	5GA-T33	
C40	.02	400	CO-H-4203	P488N-02	DD-303	CUB4S3	GEM-412	4TM-S2	
C41	.01	1000	CO-D-4103	P1088N-01		CUB10SI	GEM-1011	10TM-S1	
C42	.0047	600	CO-H-4473K				GEM-16247		10%
C43	.25	200		P388N-25		CUB2P25	GEM-3025	2TM-P25	
C44	.025	600	CO-C-6353						10%
C45	10000		CO-5819	BPD-01	DD-103	BYA6SI	DC511	5HK-SI	
C46	.1	400	CO-H-4104	P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C47	100		CCD101K	N750-DI 100	DTN-100	CI0T1U	NT-531	5TCU-T1	N750 10%
C48	330		CCD331K		D6-331	LI0T33		MS-332	10%
C49	1000		CO-4837			IR5DA	MCB255	MS-2I	10%
C50	470	1000	CO-5467						10%
C51	1000		CO-4837			IR5DA	MCB255	MS-2I	10%
C52	.1	200	CO-H-3104	P388N-1	DF-104	CUB2P1	GEM-301	2TM-P1	
C53	.0047	600	CO-H-6472K				GEM-16247		10%
C54	3900		CO-5466	1464-0039		IR5D39		MS-239	10%
C55	.1	600	CO-H-4104	P468N-1	DF-104	CUB6P1	GEM-601	6TM-P1	
C56	.001	600	CO-O-6102A				GEM-1621		10%
C57	680	1000	RCM30A681K						10%
C58	.001	600	CO-O-6102K				GEM-1621		10%
C59	110- 580		CT2526						
C60	.047	400	CO-H-4473	P488N-047	DF-503	CUB6S47	GEM-4147	4TM-S47	
C61	10000			BPD-01	DD-103	BYA6SI	DC511	5HK-SI	②
C62	.22	600	CO-H-4234	P468N-22		CUB6P22	GEM-6022	6TM-P22	
C63	60	3000	CO-4520						10%
C64	150	3000	CO-3830	HVD-30-150	DD30-151	HVB30T15		30GAB-T15	
C65	47	3000	CO-3625						N750
C66	.047	600	CO-B-6473	P468N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	

① Some versions may use 18mmf 10% in this application (Part #CO-4838).
② Some versions may use 1000mmf 10% in this application (Part #CCD102M).
③ Not used in some versions.
④ Some versions may use 5000mmf 10% in this application (Part #CCD502K).

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	OLYMPIC PART No	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1500Ω	½	PT5665				UE2282	Contrast - Note 1
B	1meg	½					Not Req.	Volume - Note 1
C	Switch						Not Req.	Push-Push Type
R2A	1meg	½	PT5704	F1-51				Horiz. Hold
B	2meg	½		R2-67		*GJ-966	**UE3593	Vert. Hold
R3A	1meg	½	PTK5702	B-69	A47-1meg-S	QU-137	UB4	Brightness
B	Shaft			Not Req.	SB8-3	Not Req.	Not Req.	
R4A	5000Ω	½	PT3619-2	AB-10	B47-5000-S	QU-114	TA52L	Vert. Lin.
B	Shaft			AK-1	Not Req.	TQ	Not Req.	
R5A	2.5meg	½	PT5005-1	AB-83	B47-2.5meg -S	QU-239	TA358L	Height
B	Shaft			AK-1	Not Req.	TQ	Not Req.	
R6	400Ω	1(WW)	PT3611		39-500		FL-600	Buzz

* "Concentrikit" Equivalent K-6 Kit, Base Elements & Shafts: B11-137, P17-118 (Panel) B11-139, R1-130 (Rear)

** "STA-LOC" Equivalent FA161, OH500, RU24L, H3000.
Note 1. Some versions may use 1500Ω and 500K controls (Part #PTK25405).
NOTE: Part number prefix PT and PTK are interchangeable.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		OLYMPIC PART No.	NOTES
	OHMS	WATT		
R7	1000Ω		REB102M	
R8	1meg		[illegible]	
R9	1000Ω	1	REC102M	Note 1
R10	10Ω		REB10OK	
R11	10Ω		REB10OK	Note 1
R12	22K		REB223K	Note 2
R13	22K		REB223K	Note 3
R14	330Ω		REB331M	
R15	47Ω		REB470K	
R16	330Ω		[illegible]	
R17	180Ω		REB18IK	
R18	8200Ω		REB822K	
R19	220Ω		REB221M	
R20	1.5meg		REB155K	
R21	1meg		REB105K	
R22	33K	2	REB333M	
R23	6800Ω	4	REB683K	
R24	15000		REB153M	
R25	68Ω		REB680M	
R26	15K		REB153K-1	Note 4
R27	150K		REB154K	
R28	22K		REB223K	
R29	2700Ω		REB272K	
R30	1meg		REB105K	
R31	22K	1	REB223K	
R32	47K		REB473K	
R33	33000Ω	2	REB333K	
R34	150Ω		REB151M	
R35	1000Ω		REB102M	
R36	330K		REB334K-A	
R37	10K		REB103K	
R38	1meg		REB105K	
R39	1meg		REB105K	
R40	700Ω	10	REB3G9	
R41	22K		REB223K	
R42	470K		REB474M	
R43	2.2meg		REB225M	
R44	83K		REB823K	
R45	82K		REB823K	
R46	150K		REB154K	
R47	22K		REB223K	
R48	6800Ω		REB682K	Note 1
R49	47K		REB473K	
R50	82K		[illegible]	

ITEM No.	RATING		OLYMPIC PART No.	NOTES
	OHMS	WATT		
R51	680K		[illegible]	Note 5
R52	47K		REB473K	
R53	12K		REB123K	
R54	1.5meg	1	REC155K-1	
R55	150K		REB154K	
R56	1.5meg		REB155K	
R57	560Ω		REB561K	
R58	1.5meg		REB155K-A	
R59	560Ω		[illegible]	
R60	560Ω		REB561K	
R61	560K		REB564K	
R62	680K		REB684K	Note 5
R63	100K		REB104K-A	
R64	330K	1	REC334K	
R65	330K	1	REC334K	
R66	920Ω 5%		REB921K	
R67	1meg		REB105K	
R68	82K		REB823K	
R69	6800Ω	1	REC682K	
R70	18K	2	RED183K	
R71	18K	2	[illegible]	
R72	470K		REB474M	
R73	1meg		REB105K	
R74	56K		[illegible]	
R75	8200Ω		REB822K	
R76	82K		REB823K	
R77	10K		REB103K	
R78	470K		REB474K	
R79	47Ω		REB470K	
R80	5600Ω	2	REC562K	
R81	3300Ω	2	RED332K	
R82	47K	1	REC473M	
R83	33Ω	1	RED330M	
R84	1000Ω	2	RED102M	
R85	100K		REB104K-A	
R86	150K		REB154K	
R87	4700Ω		REB472K	
R88	3.3Ω	1	RE4119	
R89	33Ω	1	REC330M	Note 6
R90	100K	1	REC104M	
R91	470Ω		REB471K	
R92	470Ω		REB471K	
R93	180Ω		REB18IK	
R94	180Ω		REB18IK	

Note 1. Not used in some versions.
Note 2. Chassis GA & GAU use 15K in this application (Part #REB153K-1).
Note 3. Some versions may use 18K in this application (Part #REB183K-1).
Note 4. Some versions may use 12K in this application (Part #REB123K).
Note 5. Some versions may use 820K in this application (Part #REB824K).
Note 6. Some versions may use 3.3Ω in this application (Part #RE4419). Not used in Chassis GA, GAU.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		OLYMPIC PART No.	Meissner Part No.	Merit Part No.	Miller Part No.	Ram Part No.	
L1	RF Choke	CL25478					Wound on 1meg resistor
L3	47.25MC Trap	CL25545					
L5	RF Choke	CL25412	19-1006				15 Microhenries
L4A	1st. Video IF	CL4808-1		TV-129			
B	47.25MC Trap						
L5	Fil. Choke	CL2427	19-1001	BC-562	4604		1.5 Microhenries
L6	2nd. Video IF	CL4551	17-4522	TV-130	6219	VF-3	
L7	3rd. Video IF	CL4781	17-4523	TV-130	6219	VF-3	
L8	Resonant Choke	CK4225					1.7 Microhenries
L9	Series Peaking Coil	CL1358	19-3180 *	TV-184 *	6180 *	VP-5 *	180 Microhenries, wound on 12K resistor
L10	Shunt Peaking Coil	CL2614	19-3500	TV-203	6174	VP-5	500 Microhenries
L11	Series Peaking Coil	CL5827	19-3300 ▲	TV-199 ▲	6255 ▲		300 Microhenries, wound on 1meg resistor
L12	Shunt Peaking Coil	CL25491		TV-206	6145		750 Microhenries, ① Includes Cap.
L13	1st. Sound IF	CL25516					
L14	2nd. Sound IF	CL4621	17-3412				
L15	Quadrature Coil	CL3603-1			1461	SD-5	Includes Cap.
L16	Resonant Choke	CK4415					6.8 Microhenries

* Parallel with 12K resistor.
① Part #CL2414 (500 Microhenries) used in Chassis GA and GAU.

▲ Parallel with 1meg resistor.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.		REPLACEMENT DATA						NOTES
	PRI.	SEC.	OLYMPIC PART No.	Meissner Part No	Merit Part No.	Miller Part No.	Ram Part No	Thordarson Part No	
L17	50Ω		CL5464-1						

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA						
	CURRENT (Measured)	DC RES.	INDUCTANCE @ CURRENT 1000 ~(c)	OLYMPIC PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L18	.200A	56Ω	.6 Hy.	CK4047	CS037 ①	C-3996 ①		C-2326 ①	26C44 ①	C-34X ①

① Drill new mounting hole.

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	OLYMPIC PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No
T1	117V	540VCT ② 200A	6V ④ 3A	TR4007-3				P-8172		R-68BC
	SEC. 3	SEC. 4	SEC. 5							
	6.3V ⑤ 8A									

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA							NOTES
		OLYMPIC PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No	Triad PART No	
T2	Vert. Output	TR-3889	Z1900 ①	A-3039 ③ ④	V312 ③ ④	A-8141 ③ ④	26B75 ①	A-114X ②	
	Alt. Vert. Output	TR-5857							
T3	Yoke-Horiz. (18.4MH) (90°)-Vert. (39MH)	CL-3600-4	DF-607 ④ ⑤	MDF-92 ④ ⑤	Y90F19/43 ④ ⑤	DY-16A ④ ⑤	Y-16 ④ ⑤	Y-41 ⑥ NW3 ⑦ YC-1 & CL-1	
	Rear Cover & Centering Device	[illegible]							
	Yoke Clamp	[illegible]							
T4	Horiz. Output	TR-3599-5			X151 *			D-130 *	

① Use 18 : 1 turns ratio.
② Drill new mounting hole(s).
③ Remove pin #1 of yoke socket from ground. Connect red lead to junction of C4, R5, R84 and pin #7 of yoke socket. Connect green lead to pin #1 of yoke socket.
④ Use original horizontal damping network, if necessary
⑤ Connect same as original.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
9			9			9
8			8			8
6			6			6
3			4			3
2			3 & 2			2
1			1			1

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	OLYMPIC PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No	
T5	3400Ω	3-4Ω	TR3766-1	Z1101	A-3035	AU-605	A-3332	24S53	S-13X	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	OLYMPIC PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	SK4343 ①	4A07	① Used in Models CF400, U, CF401, U, TA100, U, TB101, U, CB106, U, CB107, U
	8"	PM	3-4Ω	SK1906-2 ②	8A2L	② Used in Models KB116, U, CA106, U, CB106, U, CF400, U, CF401, U
	5"	PM	3-4Ω	SK1788-2 ③	5A07	③ Used in Models CA96, U
	6"	PM		SK3691 ④		④ Used in Models ICB97, U, and substitute for SK1906-2
	6" x 9"	PM		SK3738 ⑤		⑤ Used in Models KA116, U, KB116, U, KF405, U
	4"	PM		SK25563		⑥ Used in Models KB116, U, KF405, U

COMPONENT COMBINATIONS

ITEM No	USE	DESCRIPTION	OLYMPIC PART No	REPLACEMENT DATA
K1	Vert. Integrator	2000mmf, 5000mmf, 5000mmf, 22K, 8200Ω, 820Ω	PC-3435	Aerovox PA-110 Centralab PC-104 Cornell-Dubilier 115TM1 Sprague V-1

RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA					NOTES
	CURRENT (Measured)	OLYMPIC PART No.	FEDERAL PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL PART No	SARKES TARZIAN PART No	
M1		RF5465	KG18		SD-91 ①		① Silicon Type.

OLYMPIC MODELS CA105, U, CB106, U, CB107, U, CF400, U, CF401, U, KA115, U, KB116, U, KF405, U, PKA115, U, PKB116, U, TA100, U, TB101, U, ICA96, U, ICB97, U (Ch. GA, GAU, GB, GBU, GF, GFU)

FOLDER 1

PARTS LIST AND DESCRIPTIONS (Continued)

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			OLYMPIC PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	C	3/8A 250V	FU4345	FH4344	332.375 (C 3/8A-250V)	346002	C 3/8	HC 3/10-1/2
M3	#26 Wire 3½" Length							
M4	#26 Wire 3½" Length							

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		OLYMPIC PART No.	CBS PART No.	SYLVANIA PART No.	
M5	1N60 *	1N64	1N64	1N295	Video Detector (Pigtail) * Some versions may use 1N64 in this application.

MISCELLANEOUS

ITEM No.	PART NAME	OLYMPIC PART No.	NOTES
M6	Lamp	BU187	#47, Ch. GB, GBU, GF, GFU only
M7	Tuner	CL5662	UHF-VHF, Ch. GAU, GBU, GFU
	Tuner	CL5659	VHF Ch. GA
	Tuner	CL5660	VHF Ch. GB, GF
	Tuner	CL5661	VHF Ch. GB, GF
	Tuner	CL5823	VHF Ch. GA
	Tuner	CL5824	VHF Ch. GB
	Tuner	CL5826	Ch. GB
	Tuner	CL5825	UHF Ch. GAU
M8	Switch	SW2966-1	Local-Distance, DPDT, Slide Type

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Safety Glass	PP3656	Models CA105, U, 1CA96, U, KA115, U, PKA115, U, TA100, U
Safety Glass	PP3656-1	Models CB106, U, CB107, U, 1CB97, U, KB116, U, PKB116, U, TB101, U
Safety Glass	PP3939-1	Models CF400, U, CF401, U, KF405, U
Mask	PP3646-1	Models 1CA96, U, TA100, U, CA105, U
Mask	PP3646-2	Models KA115, U, CB106, U, CB107, U, 1CB97, U, KB116, U, PKB116, U, TB101, U
Mask	PP3938	Models CF400, U, CF401, U, KF405, U
Knob	KN3869-2	Volume, Models KA115, U, KB116, U, KF405, U
Knob	KN5853-2	On-Off-Volume, Vert. Hold, Models TA100, U, CA105, U, KA115, U, TB101, U, CB106, U, CB107, U, KB116, U, CF400, U, CF401, U, KF405, U
Knob	KN5899-2	Push, Off-On, Models TB101, U, CB107, U, CB106, U, KB116, U, CF400, U, CF401, U, KF405, U
Knob	KN5853	Volume, Vert. Hold, Mahogany, Models 1CA96, U, 1CB97, U
Knob	KN5853-1	Volume, Vert. Hold, Tan, Model 1CA96, U, 1CB97, U
Knob	KN3874-2	AM, Phono, TV, Models KA115, U, KB116, U, KF405, U
Knob	KN3882-2	FM, AM, Phono, TV
Knob	KN3875-2	Off-On, Tone, Models KA115, U, KB116, U, KF405, U
Knob	KN5852-2	Brightness, Contrast, Horiz. Hold, Models TA100, U, CA105, U, KA115, U, TB101, U, CB106, U, CB107, U, KB116, U, CF400, U, CF401, U, KF405, U
Knob	KN5854-2	Brightness, Models TA100, U, CA105, U, KA115, U, TB101, U, CB106, U, CB107, U, KB116, U, CF400, U, CF401, U, KF405, U
Knob	KN5852	Contrast, Horiz. Hold, Mahogany, Models 1CA96, U, 1CB97, U
Knob	KN5852-1	Contrast, Horiz. Hold, Tan, Models LCA96, U, 1CB97, U
Knob	KN5854	Brightness, Mahogany, Models 1CA96, U, 1CB97, U
Knob	KN5854-1	Brightness, Tan, Models 1CA96, U, 1CB97, U
Cabinet	CA5884	Models KA115, U, KB116, U
Cabinet	CA25300	Models TA100, U, TB101, U
Cabinet	CA25302	Models CA105, U, CB106, U
Cabinet	CA25303	Models CB107, U
Cabinet	CA25310	Models CF400, U
Cabinet	CA5842	Models 1CA96, U, 1CB97, U
Cabinet	CA25311	Models CF401, U
Cabinet	CA25312	Models KF405, U

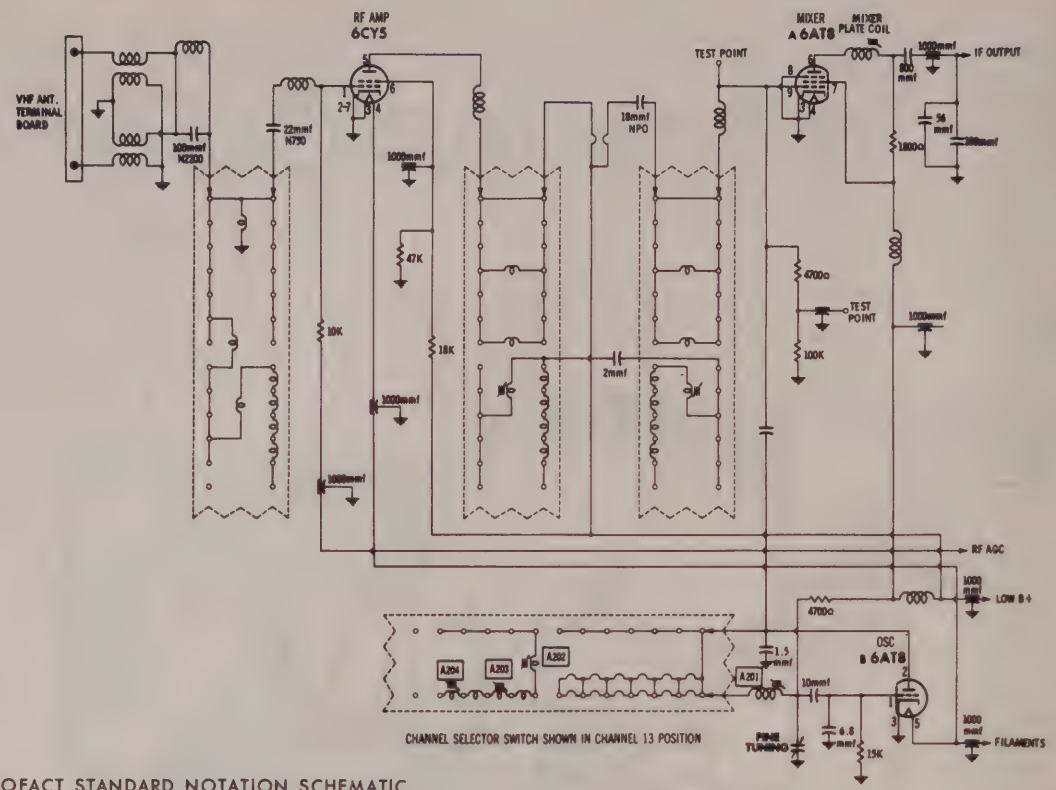
NOTE: WHEN ORDERING TUNING KNOBS SPECIFY FUNCTION, COLOR AND TUNER PART NUMBER.

WIRING DATA

High Voltage Lead	Use BELDEN No.	8869
Shielded Hook-up Wire	Use BELDEN No.	8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No.	8874
300Ω Tuner Input Lead	Use BELDEN No.	8225
300Ω Antenna Lead-in	Use BELDEN No.	8230 or 8275
Antenna Rotor Cable	Use BELDEN No.	8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor

CHASSIS TOP VIEW

OLYMPIC MODELS CA105, U, CB106, U, CB107, U, CF400, U, CF401, U, KA115, U, KB116, U, KF405, U, PKA115, U, PKB116, U, TA100, U, TB101, U, 1CA96, U, 1CB97, U (Ch. GA, GAU, GB, GBU, GF, GFU)



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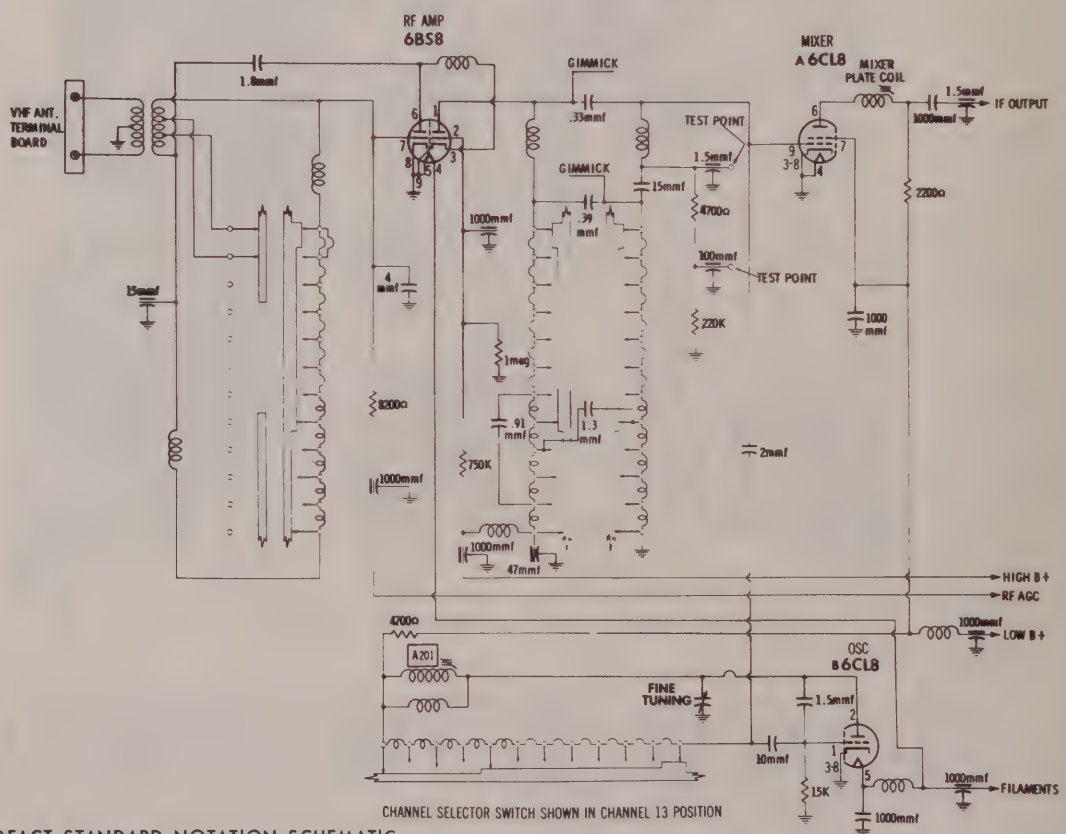
VHF TUNER #CL5659



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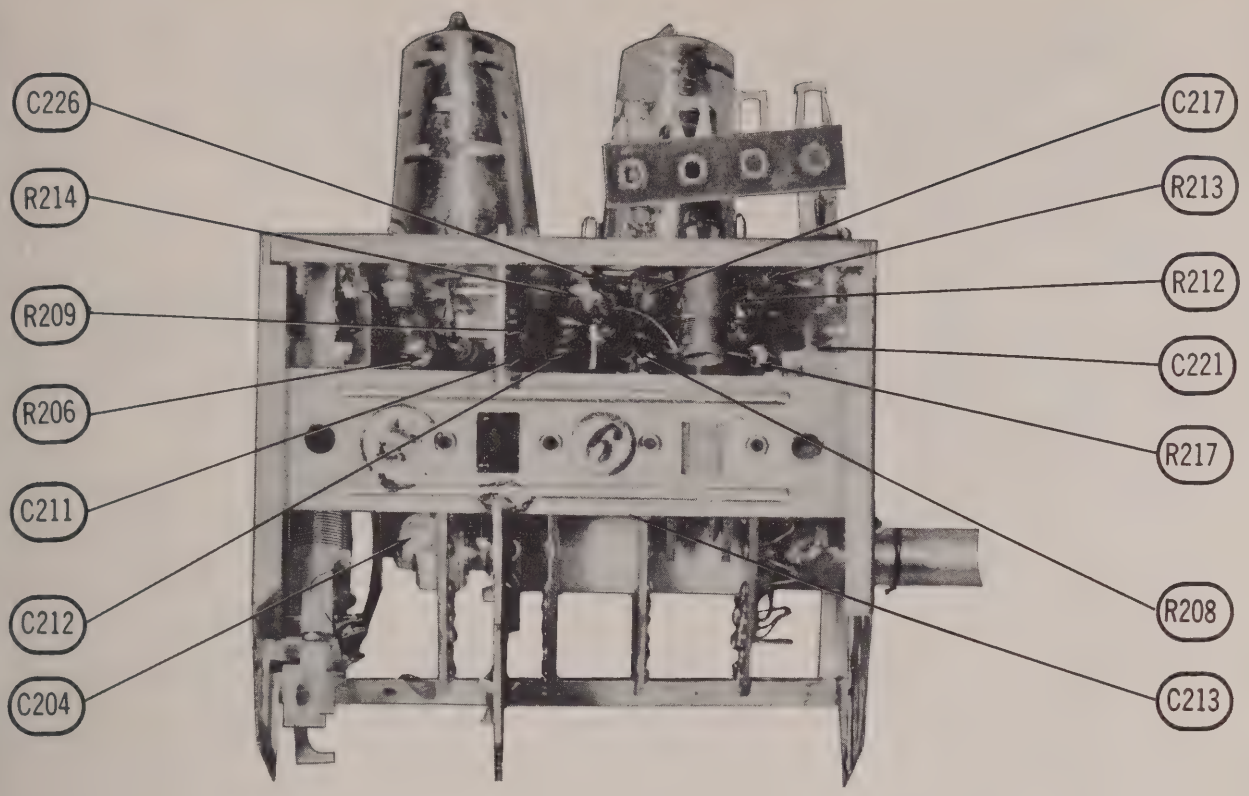
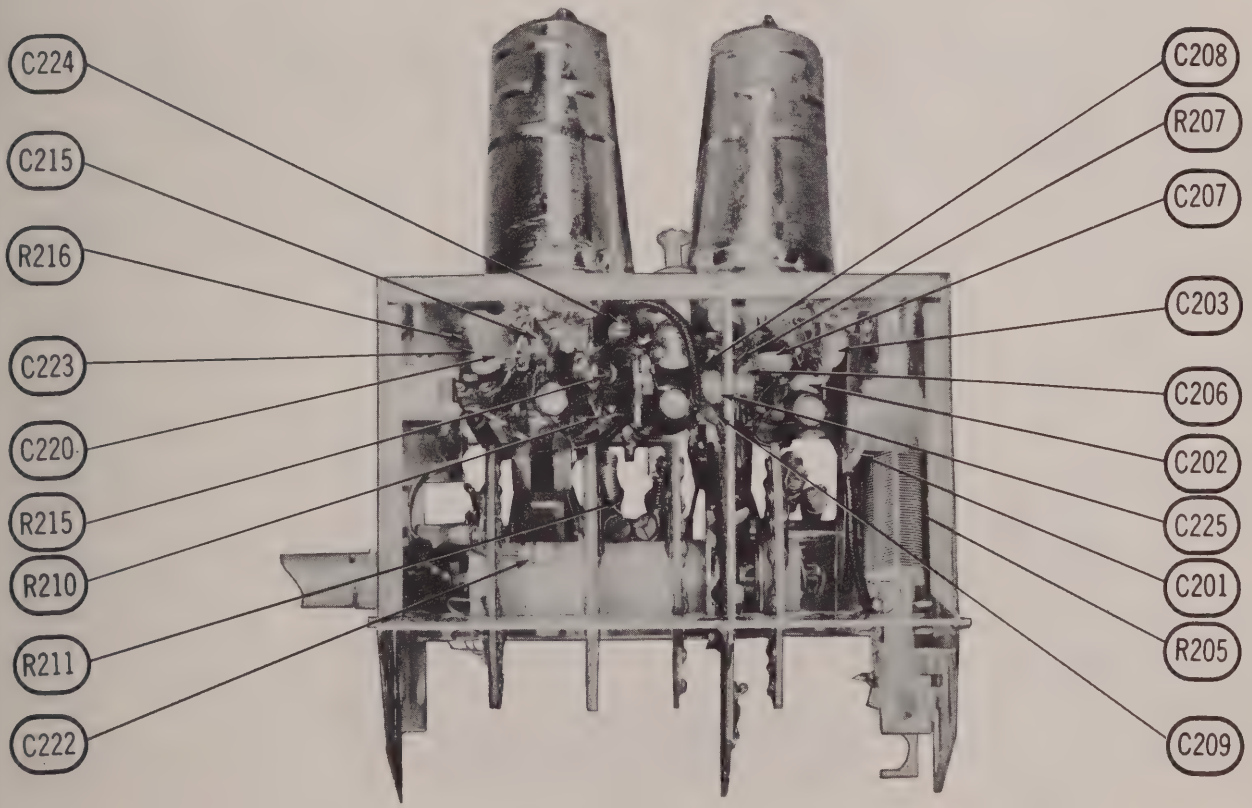
VHF TUNER CL5660



TUNER #CL5661 - LEFT SIDE



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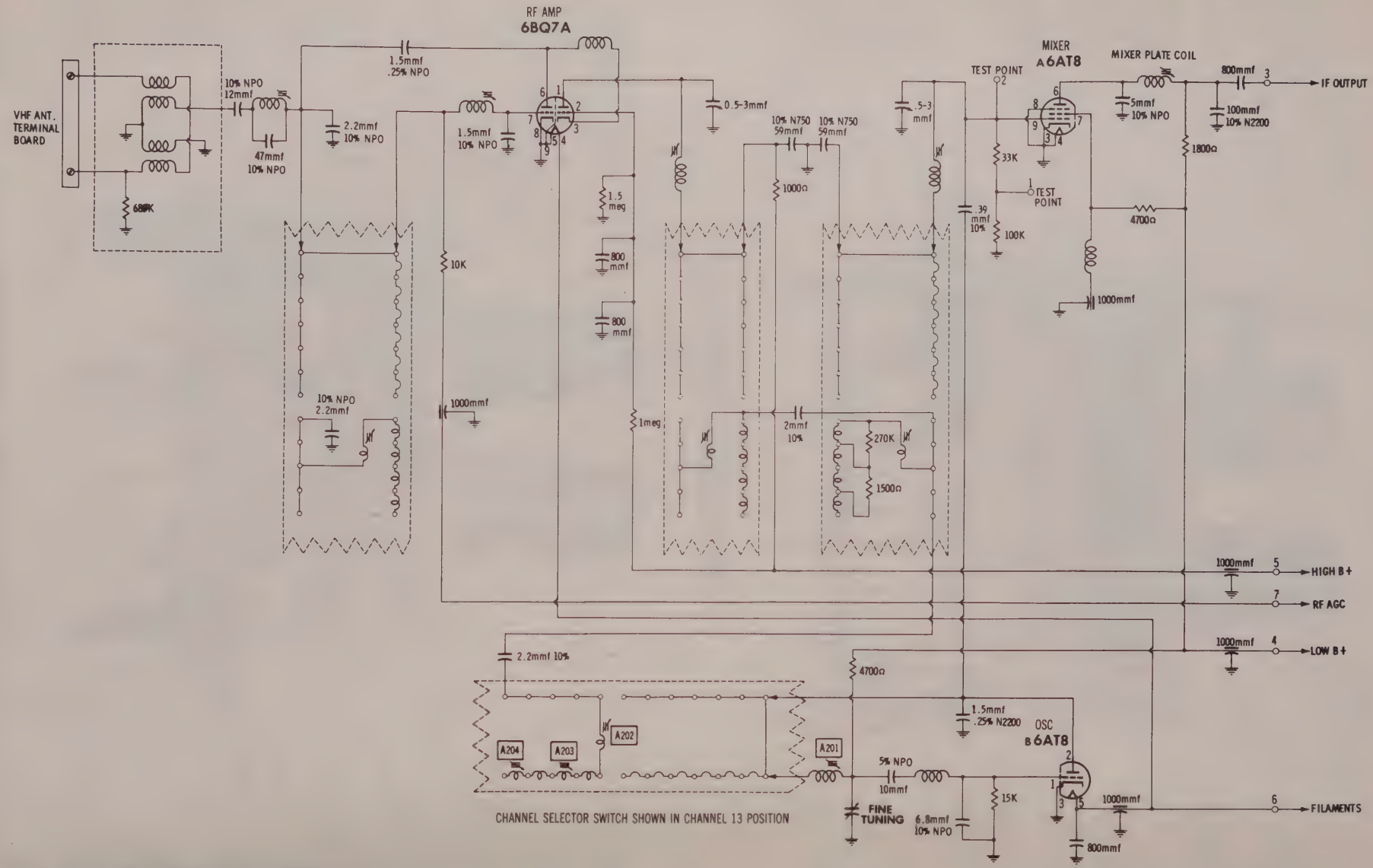

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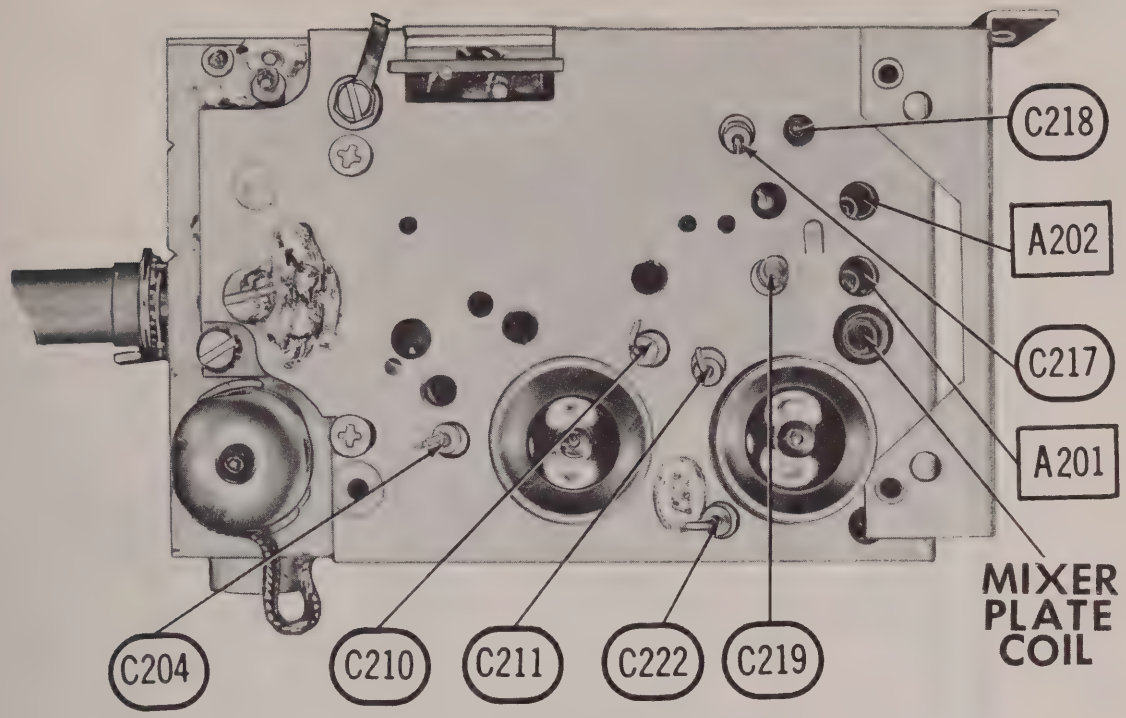
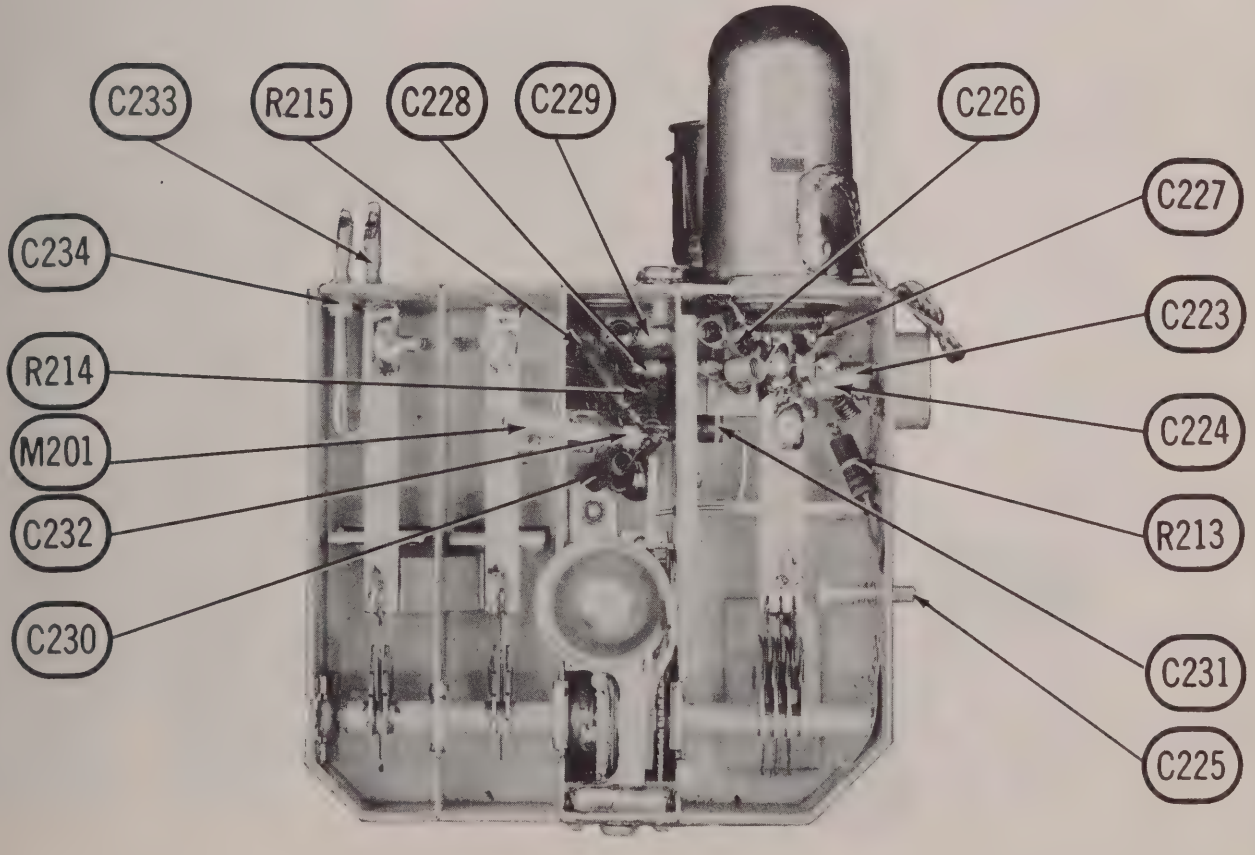
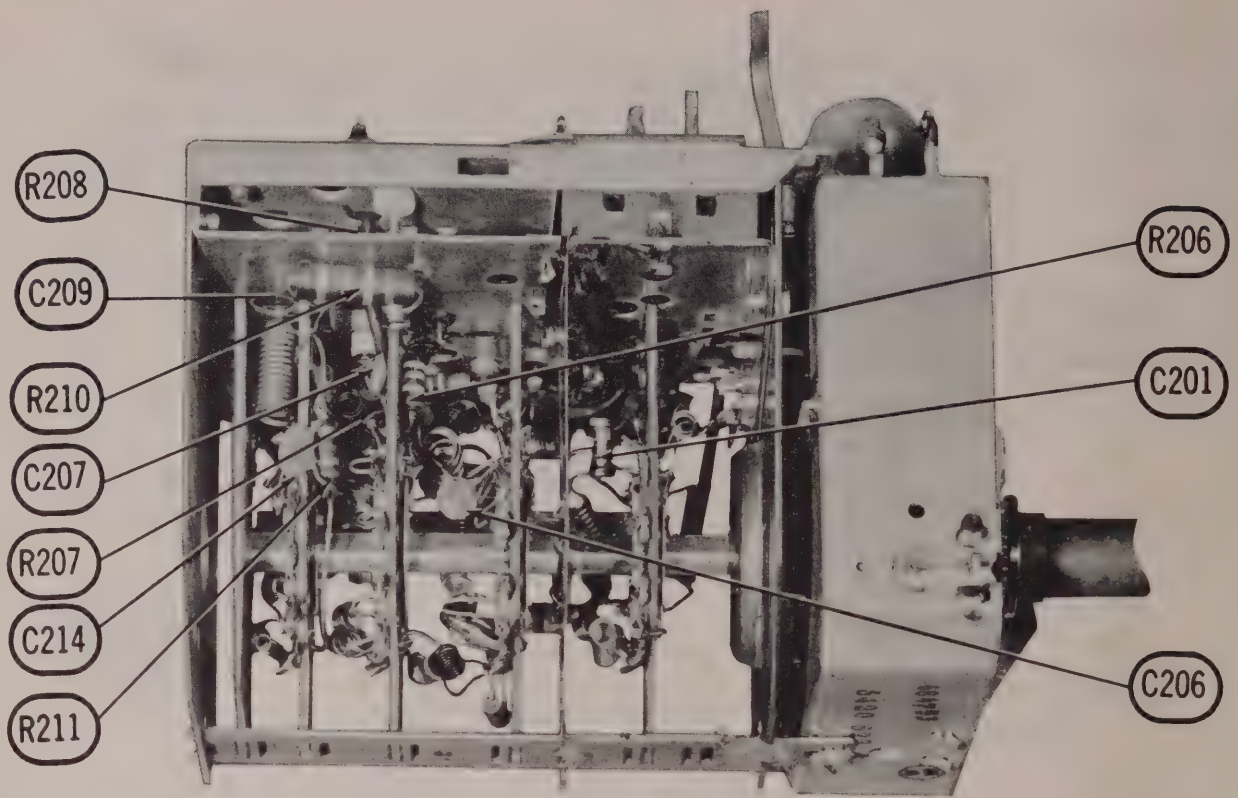
VHF TUNER #CL5824



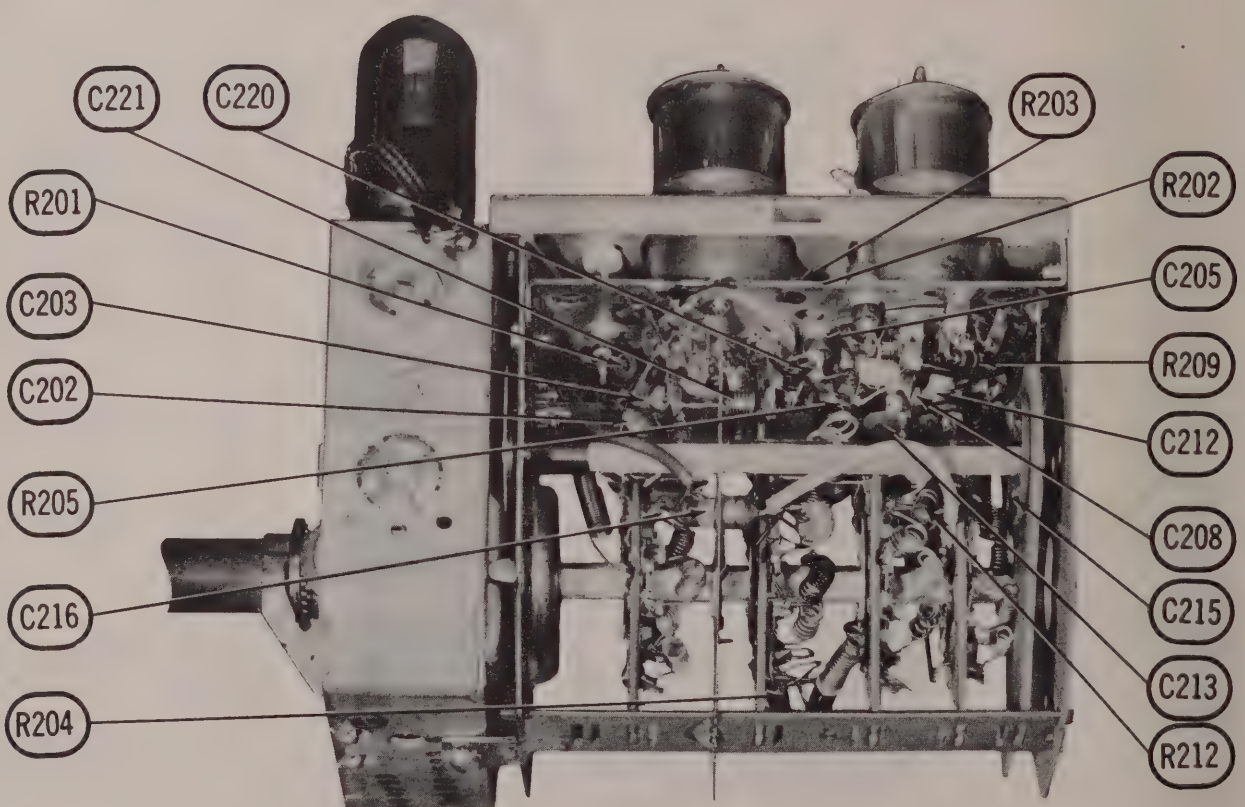
TUNER #CL5662 - TOP VIEW



TUNER #CL5825 - END VIEW



TUNER #CL5662 - LEFT SIDE



TUNER #CL5662 - RIGHT SIDE

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	1meg	47Ω	.1Ω	0Ω	▪ 330Ω	▪ 330Ω	0Ω		
V2	6CB6	.1Ω	180Ω	.1Ω	0Ω	▪ 330Ω	▪ 330Ω	0Ω		
V3	6AW8A	0Ω	1meg	† 22K	0Ω	.1Ω	• 100Ω	550K	† 33K	† 6800Ω
V4	6BN6	• 400Ω	3.4Ω	.1Ω	0Ω	▪ 3300Ω	3.4Ω	† 330K		
V5	6W6GT	0Ω	0Ω	† 875Ω	† 700Ω	500K	TP	.1Ω	¶	
V6	12AU7	▪ 25K	190K	0Ω	.1Ω	.1Ω	▪ 50K	2.6meg	0Ω	0Ω
V7	12BH7A	‡2300Ω	1.5meg	• 1500Ω	0Ω	0Ω	‡2meg	• 1.4meg	47K	.1Ω
V8	6CG7	‡40K	1.6meg	820Ω	0Ω	.1Ω	† 82K	56K	820Ω	0Ω
V9	6DQ6	0Ω	0Ω	NC	† 8900Ω	470K	TP	.1Ω	0Ω	TOP CAP ‡53Ω
V10	6AX4GT	NC	NC	¶ 150K	NC	† 0Ω	NC	0Ω	.1Ω	
V11	1B3GT		PINS	1 THRU 8	HAVE	INFINITE	RESISTANCE			TOP CAP ‡573Ω
V12	5U4GB	TP	¶	NC	32Ω	TP	30Ω	TP	¶	
V13	21CBP4	0Ω	22K	Pin 6 ‡55K	Pin 10 ‡55K	Pin 11 • 220K	Pin 12 .1Ω			
V201	6BK7B	† 1000Ω	400K	INF	.1Ω	0Ω	INF	1meg	0Ω	0Ω
V202	6U8	▪ 5200Ω	470K	† 120K	.1Ω	0Ω	† 1800Ω	0Ω	0Ω	15K
V203	6AF4A	† * 3300Ω	* 6800Ω	.2Ω	.1Ω	* .1Ω	* 6800Ω	† * 3300Ω		
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.

• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.

▪ MEASURED FROM 130V SOURCE.

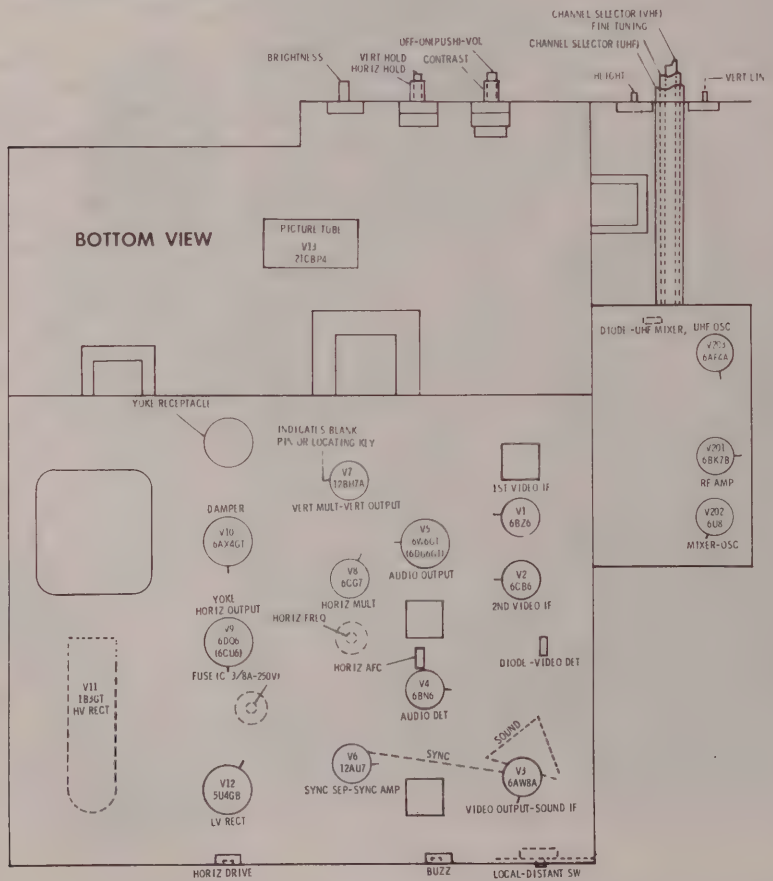
† MEASURED FROM 270V SOURCE.

‡ MEASURED FROM PIN 3 OF V10.

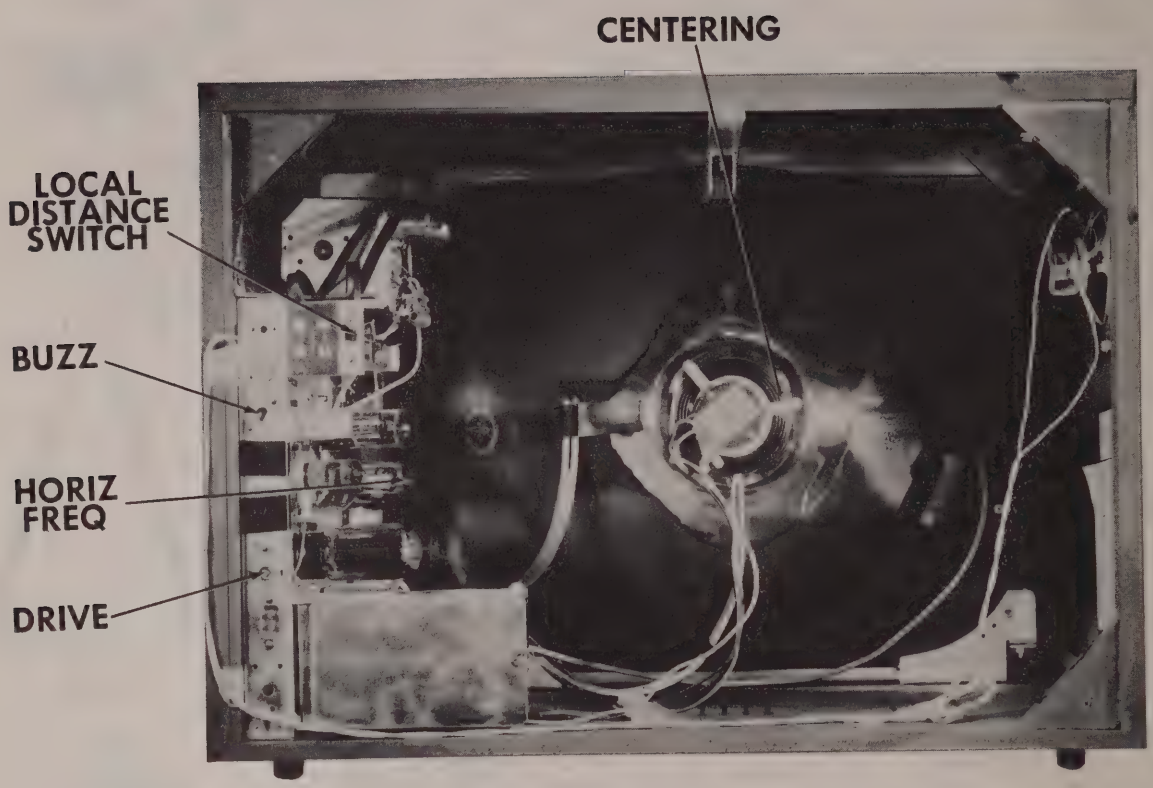
* MEASURED IN "UHF" POSITION.

NC NO CONNECTION.

TP TIE POINT.



TUBE PLACEMENT CHART



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and allow it to warm up for 2 minutes.

Tune in a TV station, preferably with a test pattern.

Connect a clip lead from point ⏀ to chassis. Connect another clip lead across the Horizontal Frequency Coil (L17).

Adjust the Horizontal Hold until the picture synchronizes horizontally. (It may float back and forth).

Remove the clip lead from L17. Adjust the Horizontal Frequency slug (B1) until the picture is again in sync. Remove clip lead from point ⏀ and chassis.

Turn Horizontal Drive Trimmer (B2) counterclockwise until a vertical white line (drive line) appears near the center of the screen, then turn clockwise until line just disappears. If drive line cannot be obtained, adjust B2 for proper width.

If B2 is adjusted, recheck adjustment of B1 and Horizontal Hold.

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*TRADE MARK

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 4 push-on type knobs from the side.
2. Remove 6 metal screws holding rear cover. Partially remove rear cover. Remove tuner antenna leads. Now remover rear cover.
3. Remove 2 bottom metal screws holding the front. Pull front out and swing up to remove.
4. Remove 4 bottom metal screws holding chassis to bottom board.
5. Remove 1 metal screw, top rear, holding chassis guide rail.
6. Remove chassis from the front of cabinet.

MODEL 14PT9012 (CH. KCS120A)

RCA VICTOR MODELS 14PD9030, U, 14PD9033, U, 14PD9034, U, 14PT9011, U, 14PT9012, U (Ch. KCS120A, B)

TRADE NAME	RCA Victor	MODELS	CHASSIS
		14PD9030, 14PD9033, 14PD9034, 14PT9011, 14PT9012	KCS120A
		14PD9030U, 14PD9033U, 14PD9034U, 14PT9011U, 14PT9012U	KCS120B
MANUFACTURER	Radio Corporation of America, RCA Victor Tele. Div., Camden 8, N.J.		
TYPE SET	Television Receiver		
TUBES	Sixteen		
POWER SUPPLY	110-120 Volts AC, 60 Cycle	RATING 150 Watts, 1.36 Amp. @ 117 Volts AC	
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF Oscillator is possible by removing the Channel Selector and Fine Tuning knobs. Set the Fine Tuning at the center of its range. The adjustments (located in a circle around the shaft) should be made in sequence from the highest to the lowest channel in the area. Channel 12 adjustment is located at 2 o'clock, proceed in a counterclockwise direction adjusting for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

Remove 2 bottom metal screws holding the front. Pull bottom out and swing up to remove. NOTE: Use mild soap and water with a soft cloth to clean the safety glass.

FOCUS

No provision is made to vary the focus on this receiver.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

The Horizontal Frequency coil is used as the Horizontal Hold control. Adjust the Horizontal Hold until the picture synchronizes horizontally. (For location, see tube placement chart.)

FUSE DEVICE

A 9Ω fusible resistor (R90) is used for horizontal sweep circuit protection. Two lengths of fuse wire are used for filament protection and a thermal switch for LV power supply protection.

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

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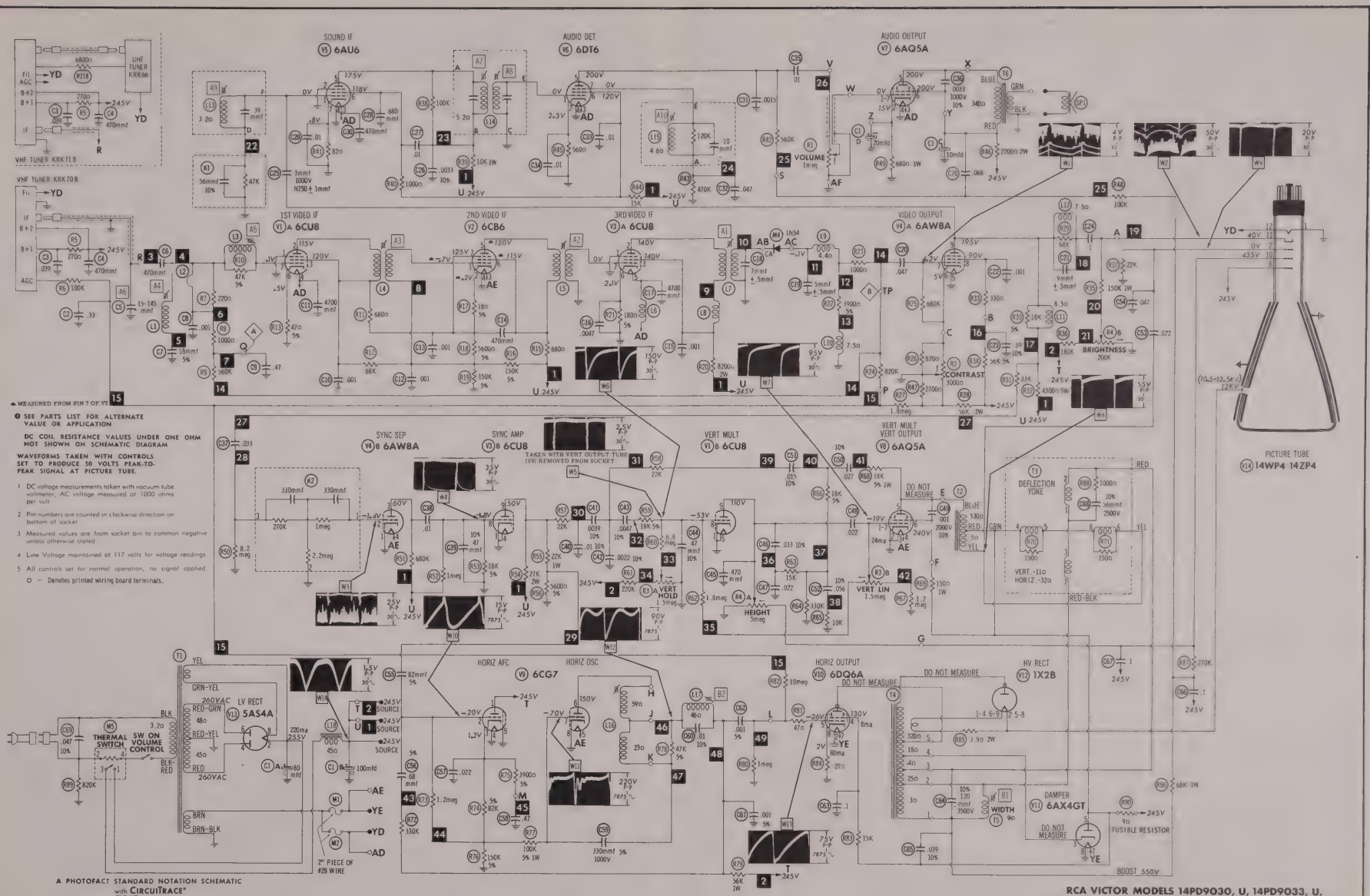
H728

SET 415 FOLDER 2



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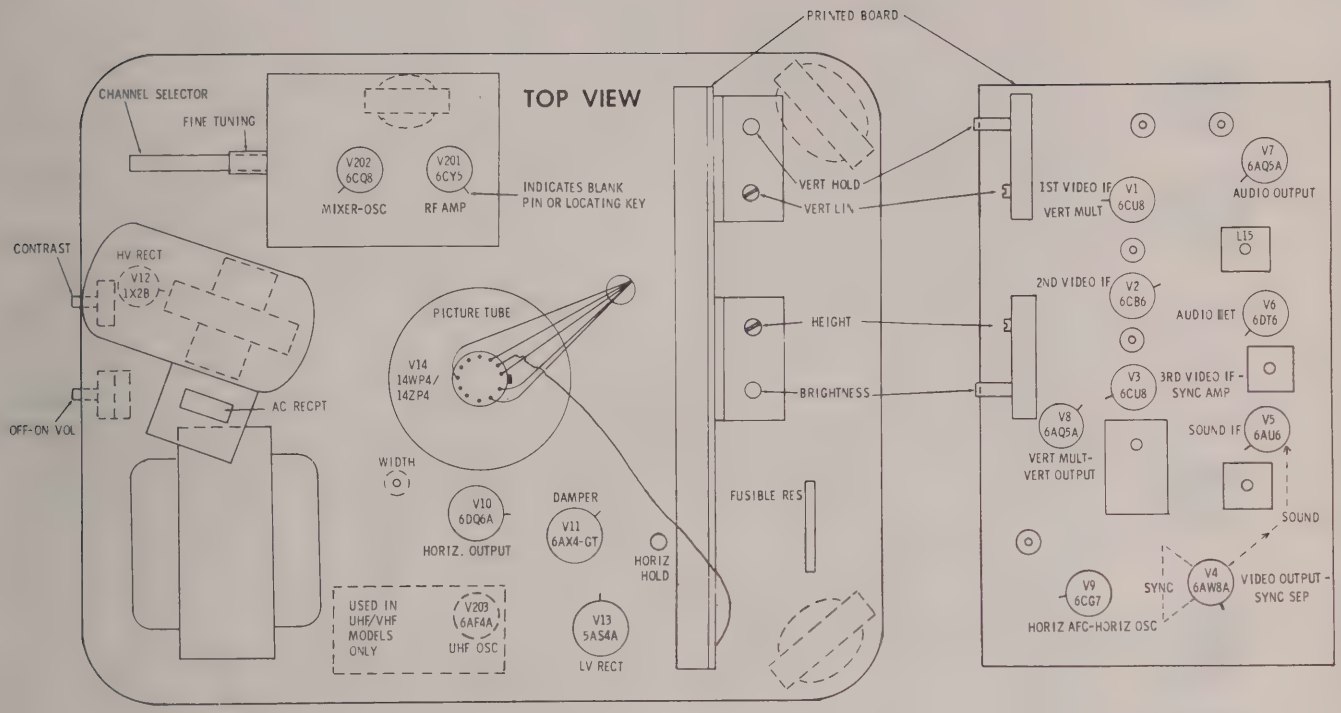
RCA VICTOR MODELS 14PD9030, U, 14PD9033, U, 14PD9034, U, 14PT9011, U, 14PT9012, U (Ch. KCS120A, B)

RCA VICTOR MODELS 14PD9030, U, 14PD9033, U, 14PD9034, U, 14PT9011, U, 14PT9012, U (Ch. KCS120A, B)

TUBE PLACEMENT CHART



RCA VICTOR MODELS 14PD9030, U, 14PD9033, U, 14PD9034, U, 14PT9011, U, 14PT9012, U (Ch. KCS120A, B)

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

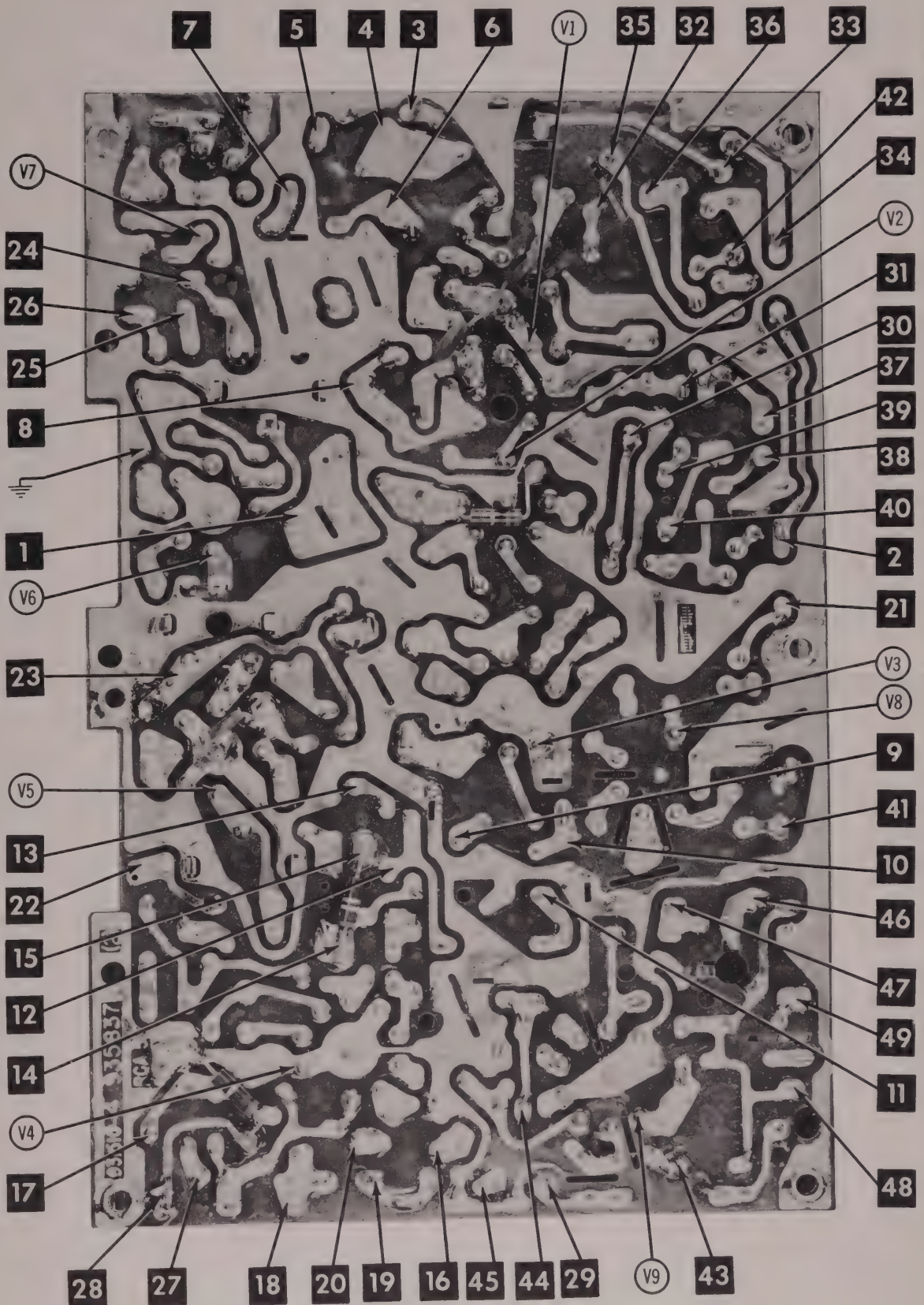
POWER SUPPLY FAILURE
No raster, no sound Thermal Switch (M5), Fuses (M1, M2), V13

SWEEP FAILURE
No raster, has sound V9, V10, V11, Fusible Resistor (R90), V12, V14
No vertical deflection V1, V8
Poor vert. linearity or foldover V1, V8
Poor horiz. linearity or foldover V9, V10, V11
Narrow picture V9, V10, V11, V13
Vert. off freq. V1, V8
Horiz. off freq. V9

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, Diode (M3), V4
No pic, no sound, has snow V201, V202, V1 (V203 UHF only)
No pic, has sound, has raster V4, V14
Has pic, no sound V5, V6, V7

SYNC FAILURE
No vert. sync V4, V3
No horiz. sync V4, V3, V9
No vert. or horiz. sync V4, V3

FOLDER 2



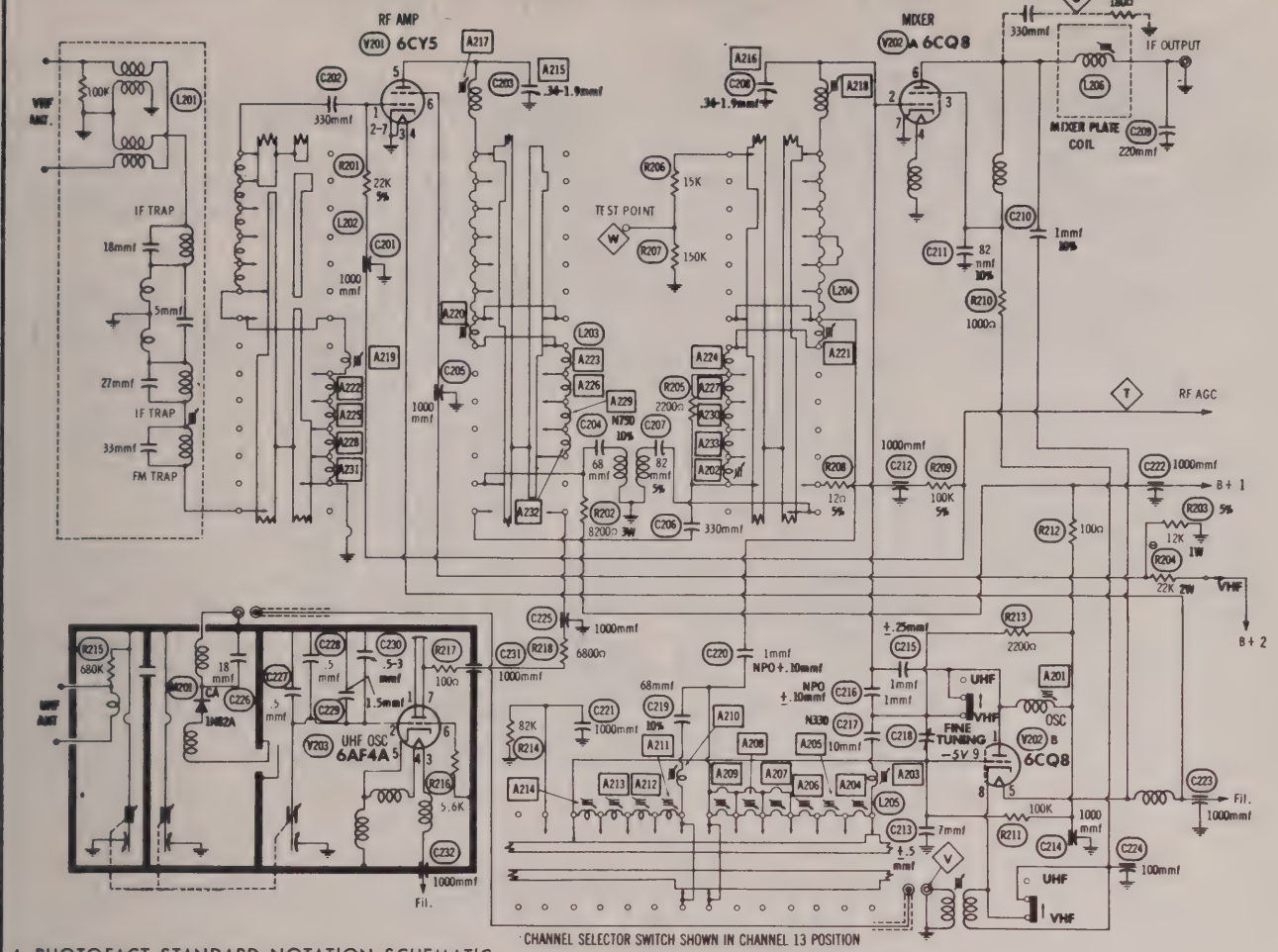
A Howard W. Sams CIRCUITRACE* Photo
*TRADE MARK

PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

RCA VICTOR MODELS 14PD9030, U, 14PD9033, U,
14PD9034, U, 14PT9011, U, 14PT9012, U (Ch. KCS120A, B)

FOLDER 2



A PHOTOFACT STANDARD NOTATION SCHEMATIC
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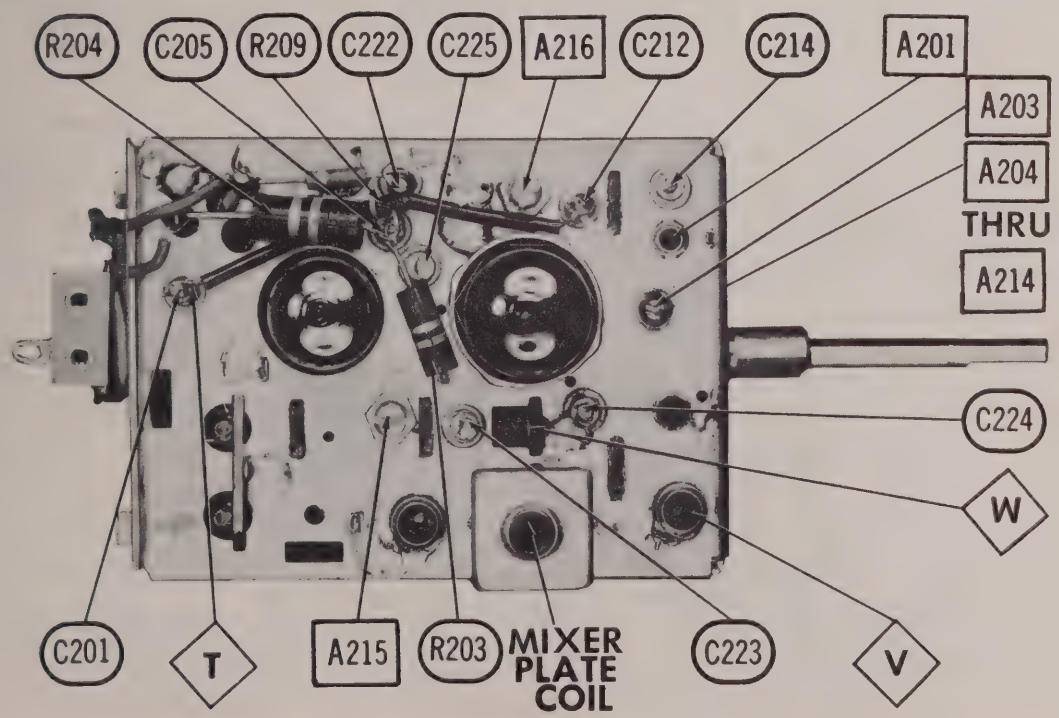
VHF TUNER W/UHF PROVISIONS KRK-71B & UHF TUNER KRK-66



TUNER KRK-71B - TOP VIEW

SET 415 FOLDER 2

TUNER ALIGNMENT INSTRUCTIONS

TUNER IF ALIGNMENT FOR UHF/VHF MODELS ONLY

Connect the negative lead of a 3 volt bias supply to point (T). Positive to chassis.
Connect a 330mmf capacitor and a 180Ω resistor in series from pin 6 plate of the mixer (V202) to chassis (with the capacitor next to the tube and the resistor next to chassis.) The junction of this capacitor and resistor is alignment point (U) as shown on the schematic.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Fig. 201	High side thru tuner IF input head (Fig. 201) to point (V). Low side to chassis.	44MC (10MC Swp)	41.25MC 45.75MC	UHF	Vert. Amp. thru detector probe to point (U). Low side to chassis.	A201, A202	Adjust for maximum gain and symmetry of response similar to Fig. 202 with markers as shown.
2.	Direct	Across UHF antenna terminals. Connect high side of signal generator to pin 7 (grid) of 1st. IF Amp. (V1). Low side to chassis.	Tune entire UHF range.	42.5MC 45.0MC 45.75MC	"	Across Video Detector load.		Check for response similar to Fig. 203. If necessary, retouch A201 and A202 for proper overall response. Use 5 volts peak to peak on scope. Remove 330mmf capacitor and 180Ω resistor.

VHF OSCILLATOR ALIGNMENT

Connect the negative lead of a 3 volt bias supply to point (T). Positive to chassis.
Couple RF output cable of the signal generator loosely to the sweep cable to provide markers.
Disconnect link cable from the IF output jack at the tuner and connect a 39Ω resistor across the IF output jack.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Set the Fine Tuning to the center of its range.
Use only enough sweep generator output to provide a usable pattern on scope.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
3.	Fig. 204	Across antenna terminals thru matching network (Fig. 204).	Not used	257MC	13	Vert. Amp. thru detector probe to point (W). Low side to chassis.	A203	Adjust for zero beat with signal generator. (See Fig. 205 for osc. adjustments location.)
4.	"	"	"	251MC	12	"	A204	"
5.	"	"	"	245MC	11	"	A205	"
6.	"	"	"	239MC	10	"	A206	"
7.	"	"	"	233MC	9	"	A207	"
8.	"	"	"	227MC	8	"	A208	"
9.	"	"	"	221MC	7	"	A209	"
10.	"	"	"	129MC	6	"	A210	"
11.	"	"	"	123MC	5	"	A211	"
12.	"	"	"	113MC	4	"	A212	"
13.	"	"	"	107MC	3	"	A213	"
14.	"	"	"	101MC	2	"	A214	"

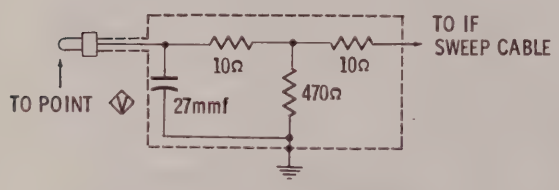


FIG. 201

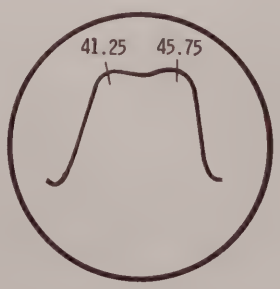


FIG. 202

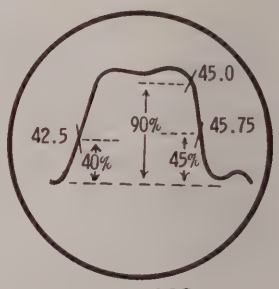


FIG. 203

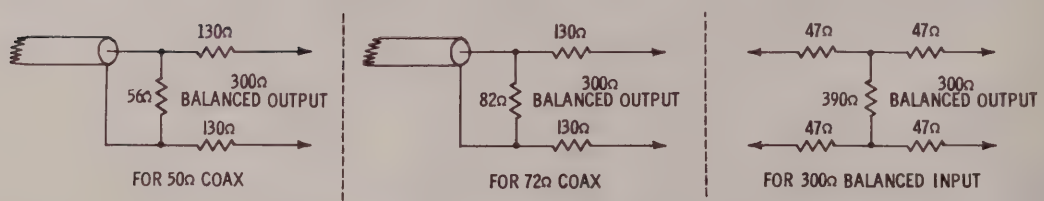
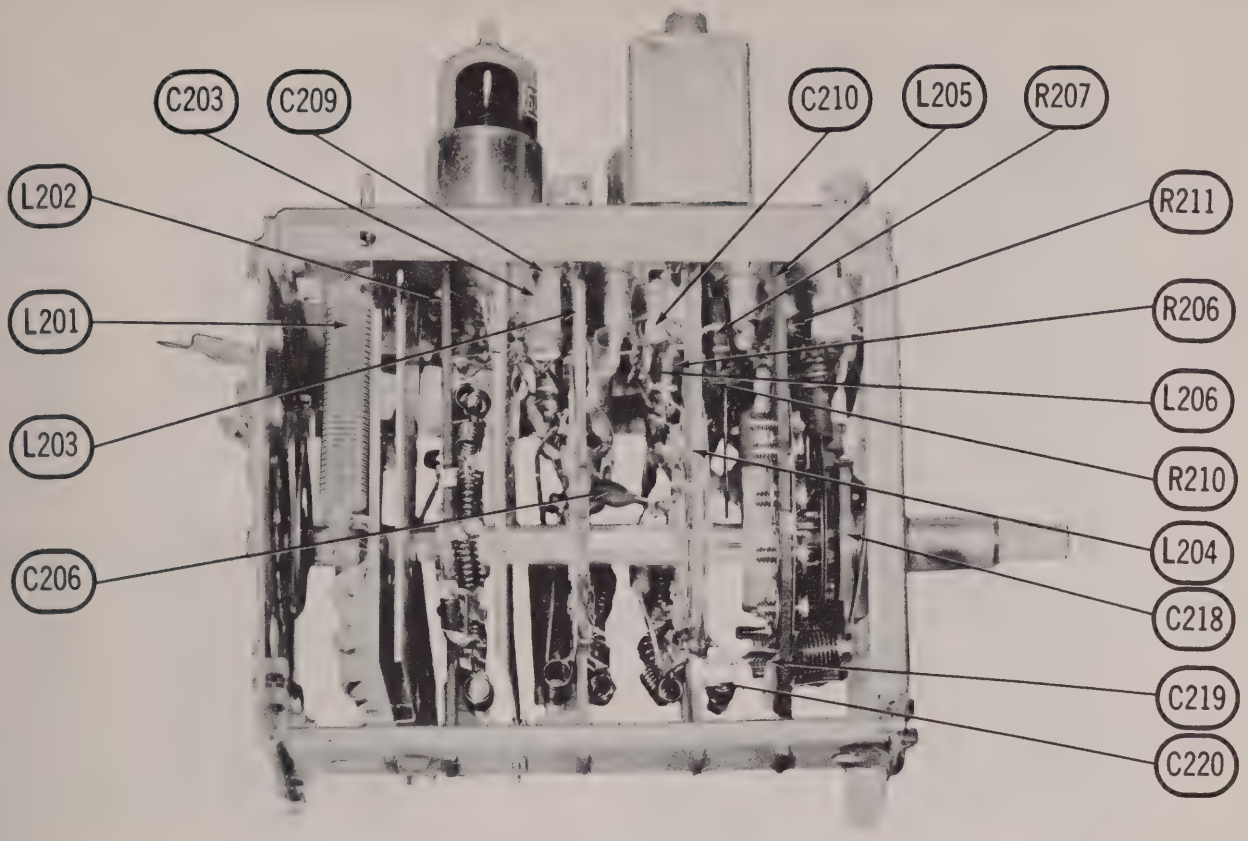
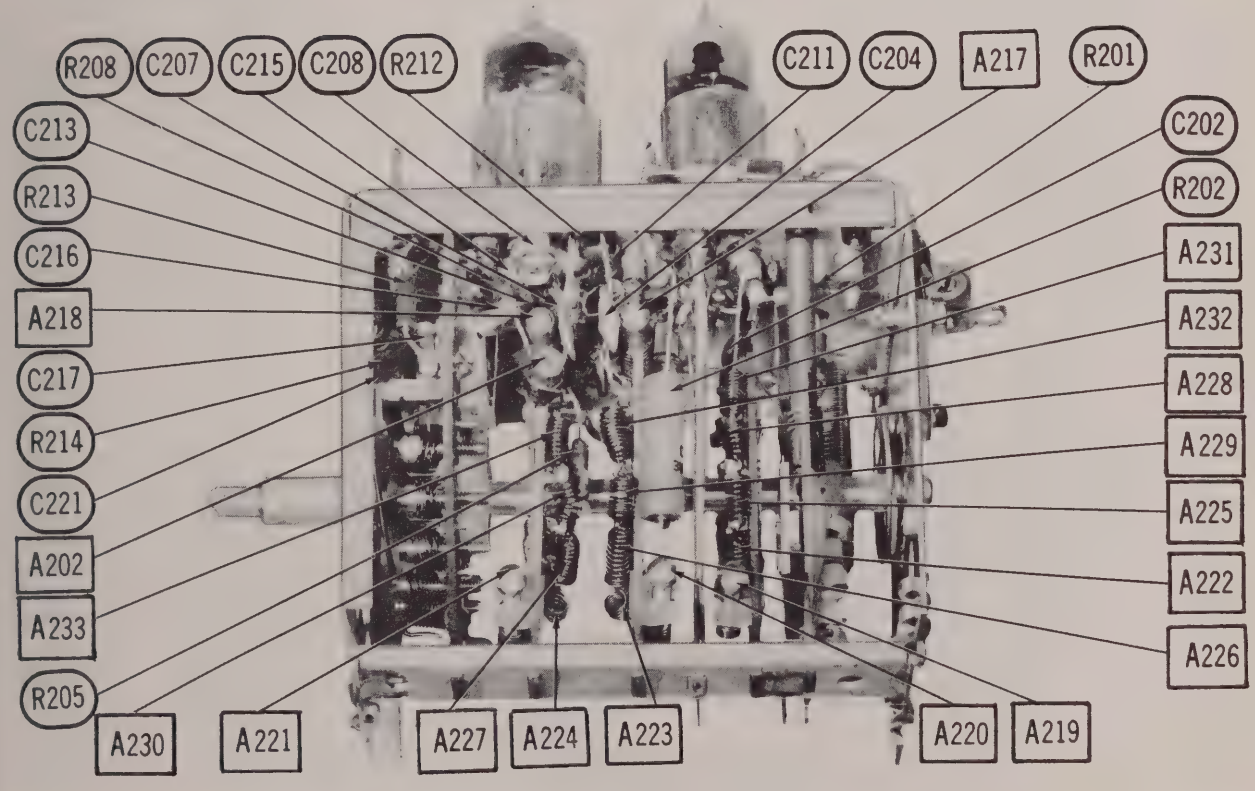


FIG. 204

CONTINUED ON PAGE 19



TUNER KRK-71B - LEFT SIDE



TUNER KRK-71B - RIGHT SIDE

TUNER KRK 66–KRK 71 PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V201	RF Amp.	6CY5	
V202	Mixer-Osc.	6CQ8	

ITEM No.	USE	TYPE	NOTES
V203	UHF Osc.	6AF4A	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	RCA Victor PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C201	1000		105660	EF-001	MFT-1000			503C-D1	
C202	330		102089	BPD-00033	DD-331	L10T33	UC-5333	5GA-T33	
C203	.34-1.9		104052						
C204	68		104224						N750 5%
C205	1000		105660	EF-001	MFT-1000			503C-D1	
C206	330		102089	BPD-00033	DD-331	L10T33	UC-5333	5GA-T33	
C207	82		104214						5%
C208	.34-1.9		104052						
C209	220		102228		D6-221	L10T22		MS-322	10%
C210	1		77690						10%
C211	82		106291	1469-000082		22R5Q82		MS-482	10%
C212	1000		105660	EF-001	MFT-1000			503C-D1	
C213	7		106254						±.5mmf
C214	1000		105660	EF-001	MFT-1000			503C-D1	
C215	1		106255						±.25mmf
C216	1		105781						NPO ±.10mmf
C217	10		103556						N330
C218									
C219	68		105855	NPO-D1 68	DD-680	L10Q68		MS-468	10%
C220	1		105781						NPO ±.10mmf
C221	1000		77252	BPD-001	DD-102	BYA6D1	DC521	5HK-D1	
C222	1000		105660	EF-001	MFT-1000			503C-D1	
C223	1000		105660	EF-001	MFT-1000			503C-D1	
C224	100			EF-0001	MFT-100			503C-T1	
C225	1000		105660	EF-001	MFT-1000			503C-D1	
C226	18								
C227	.5								
C228	.5								
C229	1.5			NPO-S1 1.5	TCZ-1R5	C10V15C	ZT-5515	5TCCB-V15	
C230	.5-3				829-3		CT565A		
C231	1000		105660	EF-001	MFT-1000			503C-D1	
C232	1000		105660	EF-001	MFT-1000			503C-D1	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		RCA Victor PART No.	NOTES
	OHMS	WATT		
R201	22K 5%			
R202	8200Ω	3	106253	
R203	12K 5%	1		
R204	22K	2		①
R205	2200Ω			
R206	15K			
R207	150K			
R208	12Ω 5%			
R209	100K 5%			

ITEM No.	RATING		RCA Victor PART No.	NOTES
	OHMS	WATT		
R210	1000Ω			
R211	100K			
R212	100Ω			
R213	2200Ω			
R214	82K			
R215	680K			
R216	5600Ω			
R217	100Ω			
R218	6800Ω			

① Tuner KRK71A use 27K in this application (Part #522327).

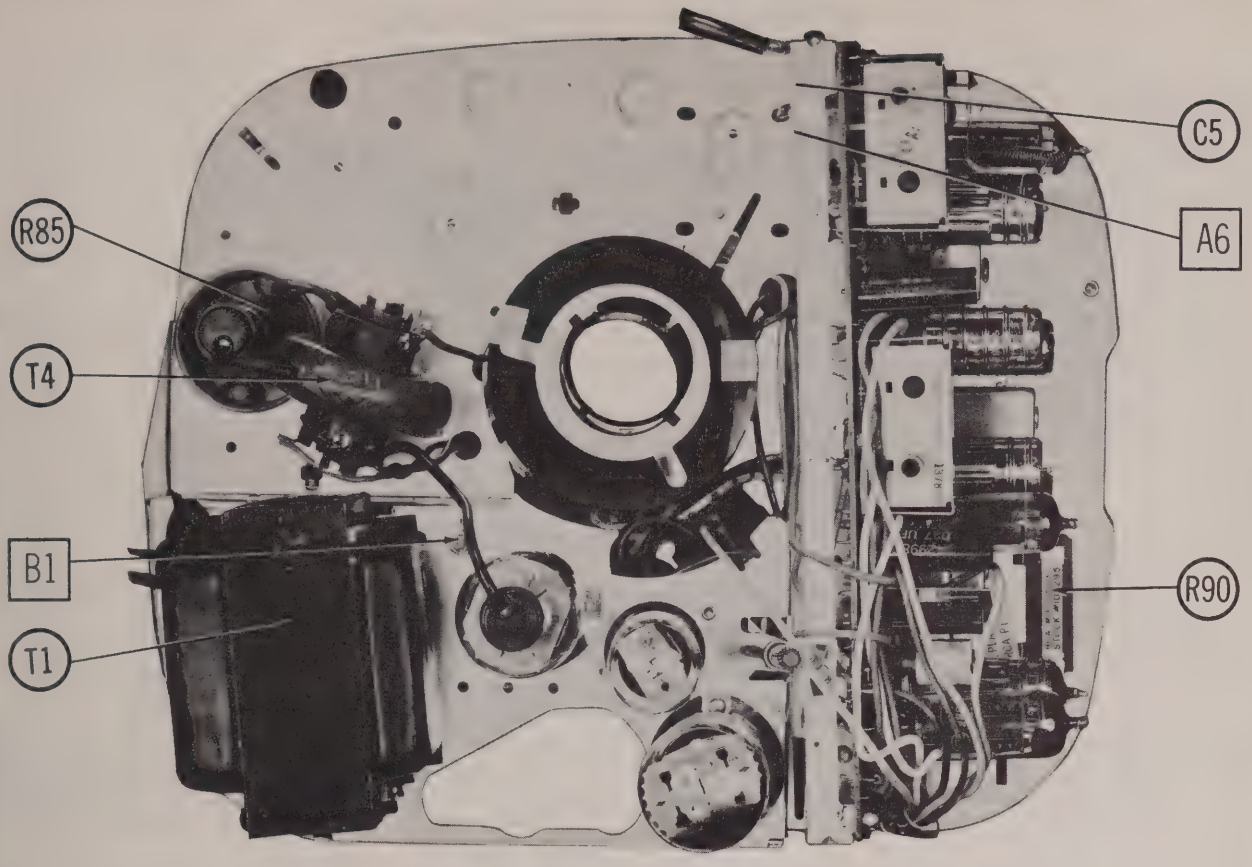
COILS (RF-IF)

ITEM No.	USE	RCA Victor PART No.	NOTES
L201	Ant. Trans.	105924	
L202	Ant. Coils	106247	Channel 2-13, Includes wafer assy.
L203	RF Coils	106252	Channel 2-13, Includes wafer assy.

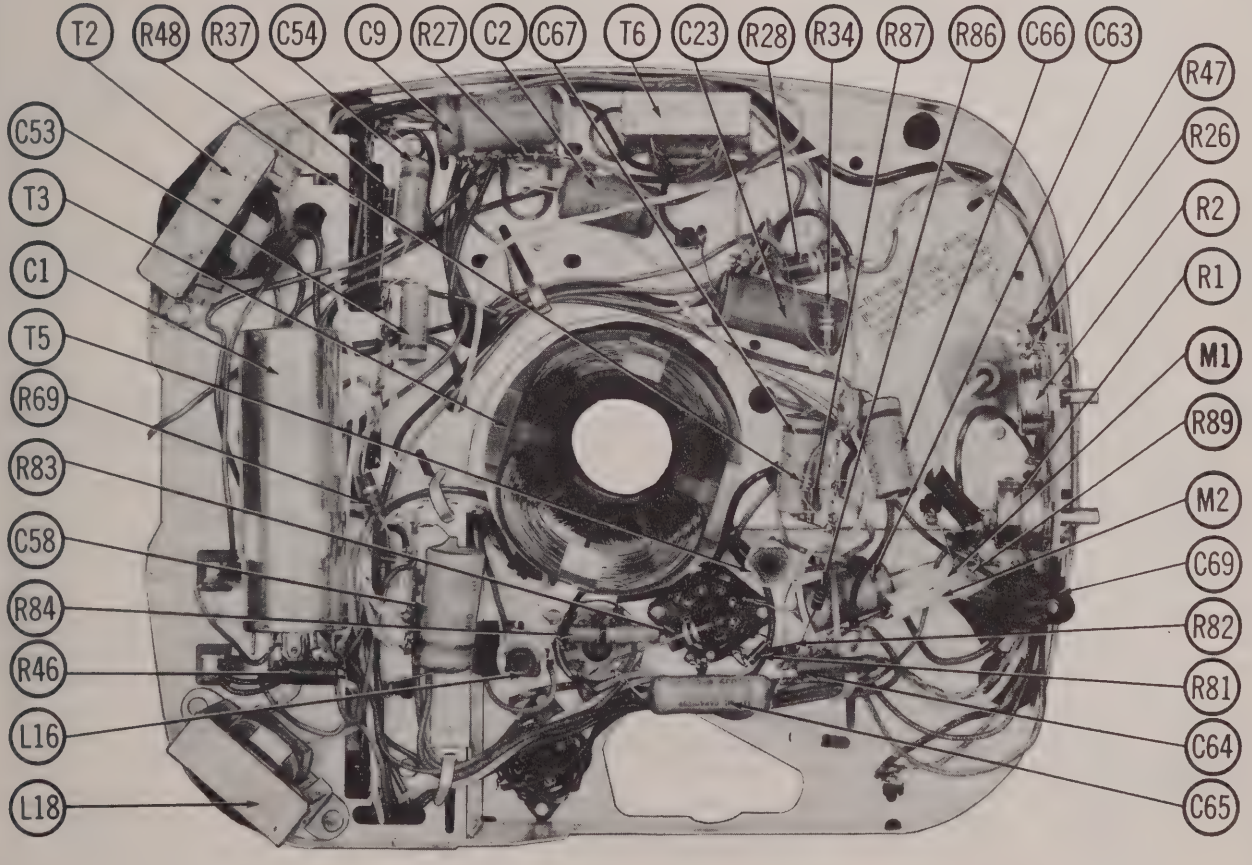
ITEM No.	USE	RCA Victor PART No.	NOTES
L204	Mixer Grid Coils	106251	Channel 2-13, Includes wafer assy.
L205	Osc. Coils	106250	Channel 2-13, Includes wafer assy.
L206	RF Choke	106248	

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		RCA Victor PART No.	CBS PART No.	SYLVANIA PART No.	
M201	1N82A		1N82A	1N82A	UHF Mixer (Clip-in)



CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.

VIDEO IF ALIGNMENT

Connect the negative lead of a 4 volt bias supply to point Ⓐ. Positive to chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	1500mmf Ceramic Capacitor	High side to Mixer Grid wafer contact thru access hole (adjacent to Mixer Grid wafer) located in left side of tuner shield. Low side to chassis.	44.5MC (Unmod)	Any non-interfering channel	DC probe to point Ⓑ. Common to chassis. (Across Video Detector load)	A1	Adjust for maximum gain. Adjust generator output for 3 volts on meter when finally peaked.
2.	"	"	45.5MC	"	"	A2	"
3.	"	"	43.0MC	"	"	A3	"
4.	"	"	47.25MC	"	"	A4	Adjust for MINIMUM deflection.

OVERALL VIDEO IF RESPONSE CHECK

Connect bias as under "Video IF Alignment".
Connect a 180Ω resistor from pin 2 (plate) to pin 3 (screen) of the 1st. Video IF Amplifier tube (V1).
Couple signal generator loosely to sweep output cable to provide markers.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5.	1500mmf Ceramic Capacitor	High side to Mixer Grid wafer contact thru access hole (adjacent to Mixer Grid wafer) located on left side of tuner shield. Low side to chassis.	45MC (10MC Swp)	42.5MC 45.75MC 47.25MC	4	Vert. Amp. thru detector probe to pin 2 (plate) of 1st. Video IF Amp. (V1). Low side to chassis. Calibrate scope for .5 volts peak to peak.	A5, A6, & Mixer Plate Coil	Use only enough sweep generator output to provide a usable pattern on scope. Adjust Mixer Plate Coil and A5 for maximum gain, using A6 to obtain curve shape with markers as shown in Fig. 1. Remove 180Ω resistor from V1.
6.	"	"	"	"	"	Vert. Amp. thru 10K to point Ⓑ. Low side to chassis. (Across Video Det. load) Calibrate scope for 5 volts peak to peak.	A1, A2, A3	Check for response similar to Fig. 2. If necessary, retouch A1, A2 and A3 for desired response.
7.	Fig. 3	High side thru pad (Fig. 3) to Mixer Grid wafer contact thru access hole (adjacent to Mixer Grid wafer) located in left side of tuner shield. Low side to chassis.	Not used	45.75MC	"	USE VTVM. DC probe to point Ⓑ. Common to chassis.		Adjust generator output to provide exactly 1.5 volts on VTVM.
8.	1500mmf Ceramic Capacitor	Remove pad. High side to Mixer Grid wafer contact thru access hole (adjacent to Mixer Grid wafer) located in left side of tuner shield. Low side to chassis.	45MC (10MC Swp)	41.25MC	"	USE VTVM. DC probe to point Ⓑ. Common to chassis. Connect scope as in step 6.	A1, A3	Retouch for 1.0 to 1.5 volts on VTVM while maintaining response similar to Fig. 4 or Fig. 5.
9.	Fig. 6	Across antenna terminals thru matching network (Fig. 6).	Each VHF Channel in turn	42.5MC 45.75MC 47.25MC	All VHF Channels	Vert. Amp. thru 10K to point Ⓑ. Low side to chassis.	A1, A2	Retouch A1 and A2 SLIGHTLY to correct for tilt or other condition that is approximately the same on all channels.

SOUND IF ALIGNMENT

Connect the negative lead of a 10 volt bias supply to point Ⓐ. Positive to chassis.
Set Contrast Control fully clockwise.
Set VTVM for negative voltage readings.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
10.	.001mfd	High side to point Ⓑ. Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	DC probe thru diode detector (Fig. 7) to pin 7 (grid 3) of 6DT6 (V6). Common to chassis.	A7, A8, A9	Adjust for maximum negative DC on meter. Attenuate generator for a reading between 1 and 1.5 volts on meter when finally peaked. Peak A7 and A8 with maximum core separation. Adjust A9 for maximum.

11. Remove VTVM and diode detector. Connect scope across volume control. Turn off signal generator and tune in the strongest signal in the area adjusting volume control for normal volume. Preset coil slug A10 flush with top of coil form. While observing scope and listening to sound output adjust A10 clockwise to a peak. Continue turning clockwise to a second louder peak and adjust for maximum on this second peak.

CONTINUED ON PAGE 15

INDUCTOR AND ALIGNMENT IDENTIFICATION

CAPACITOR IDENTIFICATION

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	1st Video IF Amp. - Vert Mult	6CU8	
V2	2nd Video IF Amp	6CB6	
V3	3rd Video IF Amp. - Sync Amp	6CU8	
V4	Video Output-Sync Sep.	6AW8A	
V5	Sound IF Amp	6AU6	
V6	Audio Det	6DT6	
V7	Audio Output	6AQ5A	
V8	Vert. Mult. - Vert. Output	6AQ5A	
V9	Horiz. AFC - Horiz. Osc.	6CG7	
V10	Horiz. Output	6DQ6A	
V11	Damper	6AX4GT	
V12	HV Rect	1X2B	
V13	LV Rect	5AS4A	

PICTURE TUBE

ITEM No.	REPLACEMENT DATA				NOTES
	RCA Victor PART No	GENERAL ELECTRIC PART No.	RCA PART No.	SYLVANIA PART No.	
V14	14WP4/ 14ZP4		14WP4/ 14ZP4 ①	14WP4/ 14ZP4 ②	① "Silverama" ② "Silver Screen 85"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP	RATING VOLT	REPLACEMENT DATA RCA Victor PART No	AEROVOX PART No	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No	SANGAMO PART No.	SPRAGUE PART No.
C1A	±80	350	103111	AFH4-56-80	D0473.5	FP425.6 TC78		Q-221.2 MT-4550	R3352 *
B	±100	350							
C	±10	300							
D	20	50							

* Non-catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	RCA Victor PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	.33	200	105671	P288N-33		CUB2P33	GEM-3033	2TM-P33	
C3	39000		105479						
C4	470		77293	BPD-00047	DD-471	BYA10T47	UC-5347	5GA-T47	
C5	15-145		105159						
C6	470		77293	BPD-00047	DD-471	BYA10T47	UC-5347	5GA-T47	
C7	18		103133						5%
C8	1000		102234-A	BPD-001	DD-102	BYA8DI	DC521	5HK-DI	
C9	.47	200	104393	P288N-47		CUB2P47	GEM-3047	2TM-P47	
C10	1000		102234-A	BPD-001	DD-102	BYA8DI	DC521	5HK-DI	
C11	4700		73473	BPD-0047	DD-472	BYA10D47	UC-5347	5HK-D47	
C12	1000		77253	BPD-001	DD-102	BYA8DI	DC521	5HK-DI	
C13	1000		77253	BPD-001	DD-102	BYA8DI	DC521	5HK-DI	
C14	470		78623	BPD-00047	DD-471	BYA10T47	UC-5347	5GA-T47	
C15	1000		102234-A	BPD-001	DD-102	BYA8DI	DC521	5HK-DI	
C16	4700		73473	BPD-0047	DD-472	BYA10D47	UC-5247	5HK-D47	
C17	4700		73473	BPD-0047	DD-472	BYA10D47	UC-5247	5HK-D47	
C18	7		104177						a. 5mmf
C19	5		104178						a. 5mmf
C20	.047	200	104210	P288N-047		BC2S47J	ACE5147	2SZ-S47	
C21	9		104211						a. 5mmf
C22	1000		77252	BPD-001	DD-102	BYA8DI	DC521	5HK-DI	
C23	.39	400	103034-A						10%
C24	.1	400	104213	P488N-1		BC2P1J	ACE601	4SZ-P10	
C25	3	1000	104204						N470 a1mmf
C26	3300		104205	1454-0033		1R5D33		MS-333	10%
C27	10000		73960	BPD-01	DD-103	BYA8SI	DC511	5HK-SI	
C28	680		104135	BPD-00068	DD-681	BYA10T68	UC-5368	5GA-T68	
C29	10000		73960	BPD-01	DD-103	BYA8SI	DC511	5HK-SI	
C30	470		77293	BPD-00047	DD-471	BYA10T47	UC-5347	5GA-T47	
C31	1500		104207	BPD-0015	DD-152	BYA10D15	DC5215	5HK-D15	
C32	.047	200	106107	P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47	
C33	10000		73960	BPD-01	DD-103	BYA8SI	DC511	5HK-SI	
C34	10000		73960	BPD-01	DD-103	BYA8SI	DC511	5HK-SI	
C35	10000		73960	BPD-01	DD-103	BYA8SI	DC511	5HK-SI	
C36	3300	1000	104206						10%
C37	.033	600	104213	P688N-033		BC6S33J		6SZ-S33	
C38	10000		73960	BPD-01	DD-103	BYA8SI	DC511	5HK-SI	
C39	47		102882	NPO-DI 47	DD-470	L10Q47		MS-447	10%
C40	.01	400	102230-A				GEM-1611		10%
C41	3900		104215			1R5D39		MS-339	10%
C42	2200		104899			1R5D22		MS-222	10%
C43	.0047	600	73920				GEM-16347		10%
C44	47		102882	NPO-DI 47	DD-470	L10Q47		MS-447	10%
C45	470		77293		D6-471	5R5T47		MS-347	
C46	.033	600	106187						10%
C47	.022	400	106184	P488N-022	DD-203	CUB4S22	GEM-4122	4TM-S22	
C48	.022	600	104145	P688N-022	DD-203	CUB6S22	GEM-6122	6TM-S22	
C49	1000	2000	104223						10%
C50	.027	600	104230						10%
C51	.015	200	106183						10%
C52	.056	200	104231						10%
C53	.022	400	103581-A	P488N-022	DD-203	CUB4S22	GEM-4122	4TM-S22	
C54	.047	200	105775	P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47	
C55	82		104214		DTZ-82	2SR5Q82		MS-482	5%
C56	68		104234	NPO-DI 68	DTZ-68	2SR5Q68		MS-468	5%
C57	.022	400	104223	P488N-022		BC6S22J		4SZ-S22	
C58	.47	200	104393	P288N-47		CUB2P47	GEM-3047	2TM-P47	
C59	320	1000	104225						5%
C60	.01	600	104237						10%
C61	1000		104226	1464-001		1R5DI	MCE255	MS-2I	5%
C62	1000		104226	1464-001		1R5DI	MCE255	MS-2I	5%
C63	.1	600	105235	P688N-1	DF-104	CUB6P1	GEM-601	6TM-P1	10%
C64	130	3500	79532						10%
C65	.039	600	73799						10%
C66	.1	400	105784	P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C67	.1	400	105784	P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	10%
C68	56	2500	104617						10%
C69	.047	600	73592						
C70	.068	600		P688N-068		CUB6S68	GEM-6168	6TM-S68	

CONTROLS

ITEM No	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA RCA Victor PART No	CENTRALAB PART No	CLAROSTAT PART No	IRC PART No	MALLORY PART No.	INSTALLATION NOTES
R1A	1meg	½	104195	B-70	A47-1meg-Z	Q13-137	TA16A	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KB-1 or KR-1*	SWE-12	T6-1	US-26	
R2	3000Ω	½	104484	B-12		Q17-112	U9	Contrast
R3A	1.5meg	½	104203					Vert. Hold
B	1.5meg	½						Vert. Lin.
R4A	5meg	½	104202					Height
B	200K	½						Brightness

* Use KR with CRL "red label" controls and KB with "blue label" controls.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	RCA Victor PART No.	NOTES
R5	270Ω			
R6	100K			
R7	220Ω			
R8	1000Ω			
R9	560K			
R10	47K 5%			
R11	680Ω			
R12	68K			
R13	47Ω 5%			
R15	680Ω			
R16	150K 5%			
R17	1Ω 5%			
R18	5600Ω 5%			
R19	150K 5%			
R20	8200Ω	2		
R21	1800Ω 5%			
R22	3900Ω 5%			
R23	1000Ω			
R24	820K			
R25	680K		402468	
R26	820Ω			
R27	1.8meg			
R28	56K	2		
R29	68K			
R30	18K 5%			
R31	33K			
R32	4300Ω	5	104201	
R33	330Ω			
R34	56K	1		
R35	150K 5%			
R36	180K			
R37	22K			
R38	100K			
R39	10K	1		
R40	1000Ω			
R41	82Ω			
R42	560K			
R43	470K			
R44	15K			
R45	560Ω			
R46	2200Ω	2		
R47	2700Ω			
R48	100K			
R49	680Ω	1		
R50	8.2meg			
R51	680K			
R52	1meg			
R53	18K 5%			
R54	27K	2		
R55	22K	1		
R56	5600Ω 5%			
R57	33K			
R58	22K			
R59	18K 5%			
R60	6.8meg			
R61	220K			
R62	1.8meg			
R63	15K			
R64	330K			
R65	10K			
R66	18K 5%			
R67	1.2meg			
R68	18K 5%	1		
R69	150Ω	1		
R70	150Ω			
R71	150Ω			
R72	330K			
R73	1.2meg			
R74	82K 5%			
R75	3900Ω 5%			
R76	150K 5%			
R77	100K 5%	1		
R78	47K 5%			
R79	56K	1		
R80	1meg			
R81	47Ω			
R82	10meg			
R83	18K	2		
R84	27Ω	1	104389	
R85	3.9Ω		103030	
R86	68K			
R87	270K			
R88	1000Ω			
R89	820K			
R90	9Ω		104296	

COILS (RF-IF)

ITEM No	USE	REPLACEMENT DATA RCA Victor PART No.	Meissner PART No	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	1st. IF Grid Trap	104141					
L2	Trap Coil						
L3	1st. Video IF	104232					
L4	2nd. Video IF	104233					
L5	3rd. Video IF	104233					
L6	Fil. Choke	73477	19-4215	BC-537	4609		5.4 Microhenries
L7	4th. Video IF	104233					
L8	Fil. Choke						
L9	Series Peaking Coil	101819	19-3036	TV-180	6178	VP-1	36 Microhenries
L10	Shunt Peaking Coil	104230	19-3125	TV-195	6153	VP-4	120 Microhenries
L11	Shunt Peaking Coil	104230	19-3300	TV-199	6155		300 Microhenries
L12	Series Peaking Coil	105456	19-3125	TV-195	6153	VP-4	120 Microhenries
L13	1st. Sound IF	104135					Includes Cap.
L14	2nd. Sound IF	104127					
L15	Quadrature Coil	106796					Includes Resistor & Cap.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES PRI.	DC RES SEC.	REPLACEMENT DATA RCA Victor PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	Thordarson PART No	NOTES
L16	82Ω *		103570						Horiz. Freq. * Tapped @ 23Ω Horiz. Waveform
L17	46Ω		102195						

FILTER CHOKE

ITEM No.	RATINGS CURRENT (Measured)	RATINGS DC RES.	RATINGS INDUCTANCE TO CURRENT 1000 ℃	REPLACEMENT DATA RCA Victor PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No
L18	.220A	45Ω	.7 Hy.	73477						

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA RCA Victor PART No	Halldorson PART No	Merit PART No	Ram PART No	Stancor PART No.	Thordarson PART No.	Triad PART No
T1	117V @1.36A	600VCT @ .220A	5V @ 3.8A	106170						
	SEC. 3	SEC. 4	SEC. 5							
	6.3V @7.2A									

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA RCA Victor PART No.	Halldorson PART No.	Merit PART No	Ram PART No	Stancor PART No	Thordarson PART No.	Triad PART No	NOTES
T2	Vert. Output	104192	21807			VO-103	26675 ①②	A-115Z	
T3 A	Yoke-Horiz. (18MH)	104369 ③				DY-24A ④	Y-50	Y-47 ⑥ NW23	
B	(90°)-Vert (11MH) Rear Cover & Centering Device	104368							
T4	Horiz. Output	106169	FB419		X168	HO-290 *	FLY-100 *	D-139	
T5	Width Coil (1.8-11MH)	104086		MWC-9 ⑤	20IR15	WC-8	WC-22	WLC-6	

① Connect as autoformer.
② Use 15:1 turns ratio.
③ Includes R70, R71, R88 and C88.
④ Use original rear cover and centering device.
⑤ Do not use tap.

* HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

	ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
	5				5	5	
	4				4	4	
	3				3	3	
	2				2	2	
	1				1	1	
Connect Width Coil Across		2 & 1			2 & 1	2 & 1	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA RCA Victor PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No	NOTES
T6	7500Ω	3-4Ω	104193	Z1113	A-2931	AU-602	A-3878	24S52	S-7X	

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA RCA Victor PART No.	QUAM PART No.	NOTES
SP1	4"	PM	3-4Ω	104478	4A07	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	RCA Victor PART No	REPLACEMENT DATA	
K1	Sound IF Grid	56mmf 10%, 47K	104329	Centralab	RC-42I
				Sprague	PRC-1
K2	Sync Coupling	330mmf, 330mmf, 270K, 1meg, 2.2meg	104330		

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA RCA Victor PART No FUSE	RCA Victor PART No HOLDER	LITTELFUSE PART No FUSE	LITTELFUSE PART No HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	#28AWG Copper Wire 2" Length							
M2	#28AWG Copper Wire 2" Length							

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA RCA Victor PART No	CBS PART No.	SYLVANIA PART No	NOTES
M3	1N54	105517	1N54A	1N54A	Video Detector (Pigtail)

RCA VICTOR MODELS 14PD9030, U, 14PD9033, U, 14PD9034, U, 14PT9011, U, 14PT9012, U (Ch. KCS120A, B)

FOLDER 2

PARTS LIST AND DESCRIPTIONS (Continued)

MISCELLANEOUS

ITEM No.	PART NAME	RCA Victor PART No.	NOTES
M4	Tuner	106231	VHF, KRK70-B, A
	Tuner	106232	VHF, W/UHF provisions, KRK71-B, A
	Tuner	962047-4	UHF, KRK66
M5	Thermal Switch Printed Board	935837	

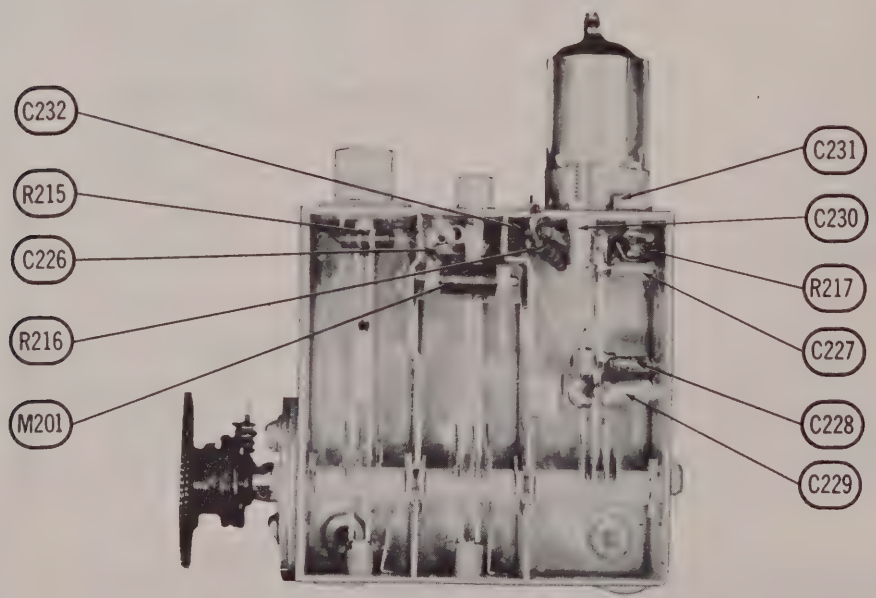
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Safety Glass	104365	
Mask	106163	Models 14PT9011, U, 9012, U
Mask	106295	Models 14PD9030, U, 9033, U, 9034, U
Knob	104350	Fine Tuning, Models 14PD9030, U, 9033, U
Knob	104351	Fine Tuning, Models 14PT9011, U, 9034, U
Knob	104349	Fine Tuning, Models 14PT9012, U
Knob	104345-A	VHF Channel Selector, Models 14PT9011, 14PD9034
Knob	104343	VHF Channel Selector, Model 14PT9012
Knob	104344	VHF Channel Selector, Models 14PD9030, 9033
Knob	104348-A	VHF Channel Selector with UHF Marking, Models 14PT9011U, 14PD9034U
Knob	104346	VHF Channel Selector with UHF Marking, Models 14PT9012U
Knob	104347	VHF Channel Selector with UHF Marking, Models 14PD9030U, 9033U
Knob	103069	UHF Channel Selector, Model 14PT9012U
Knob	103068	UHF Channel Selector, Models 14PT9011U, 14PD9034U
Knob	104352	UHF Channel Selector, Models 14PD9030U, 9033U
Knob	106141	UHF Dial, Model 14PT9012U
Knob	106140	UHF Dial, Models 14PT9011U, 14PD9034U
Knob	106301	UHF Dial, Models 14PD9030U, 9033U
Knob	103077	Contrast, Volume, Models 14PT9011, U, 14PD9034, U
Knob	103078	Contrast, Volume, Models 14PT9012, U
Knob	104342	Contrast, Volume, Models 14PD9030, U, 9033, U
Handle	104372	Models 14PT9011, U, 9012, U
Handle	105134	Models 14PD9030, U, 9033, U, 9034, U
Cabinet	Z4355	Models 14PD9030, U
Cabinet	Z4356	Models 14PD9033, U
Cabinet	Z4357	Models 14PD9034, U
Cabinet	Z4347	Models 14PT9011, U
Cabinet	Z4348	Models 14PT9012, U

WIRING DATA

High Voltage Lead	Use BELDEN No.	8869
Shielded Hook-up Wire	Use BELDEN No.	8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No.	8874
300Ω Tuner Input Lead	Use BELDEN No.	8225
300Ω Antenna Lead-in	Use BELDEN No.	8230 or 8275
Antenna Rotor Cable	Use BELDEN No.	8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor



UHF TUNER - SIDE VIEW

ALIGNMENT INSTRUCTIONS (cont)

ALTERNATE SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR

Connect the negative lead of a 10 volt bias supply to point Ⓐ . Positive to chassis.
Set Contrast Control fully clockwise.
Set VTVM for negative voltage readings.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
10.	.001mfd	High side to point Ⓑ . Low side to chassis.	4.5MC (400∿ FM Mod. 15KC Swp)	Any non-interfering channel	DC probe thru diode detector (Fig. 7) to pin 7 (grid 3) of 6DT6 (V6). Common to chassis.	A7, A8, A9	Adjust for maximum negative DC on meter. Attenuate generator output for a reading between 1 and 1.5 volts on meter when finally peaked. Peak A7 and A8 with maximum core separation. Adjust A9 for maximum.
11.	"	"	"	"	USE SCOPE. Connect across volume control.	A10	Adjust for maximum 400∿ indication on scope. Adjust volume control for .7 volt peak to peak on scope when peaked.
12.	"	"	"	"	"		Decrease input signal to MINIMUM usable level and retouch A7, A8 and A9 for symmetrical breakout similar to Fig. 8.

TUNER ALIGNMENT INSTRUCTIONS LOCATED ON PAGES 6 & 19

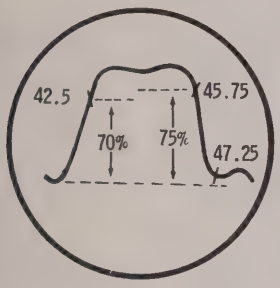


FIG.1

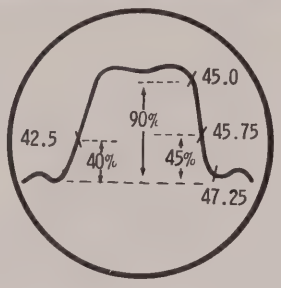


FIG.2

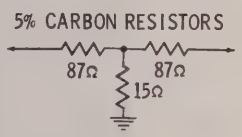


FIG.3

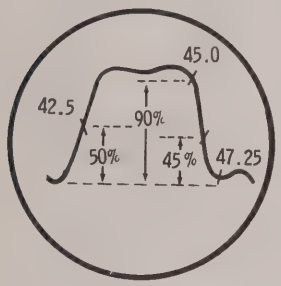


FIG.4

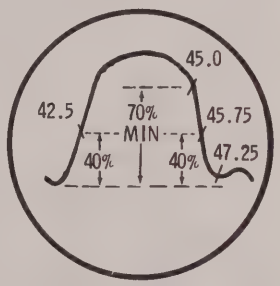


FIG.5

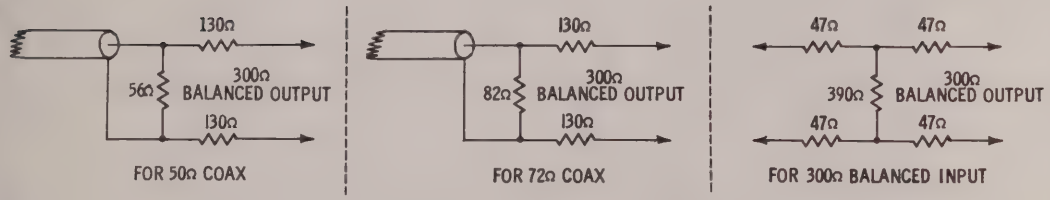


FIG.6

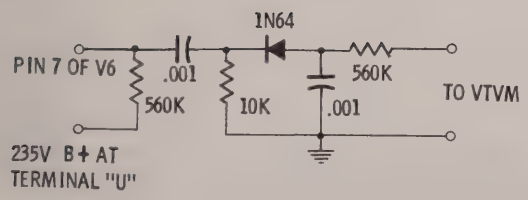
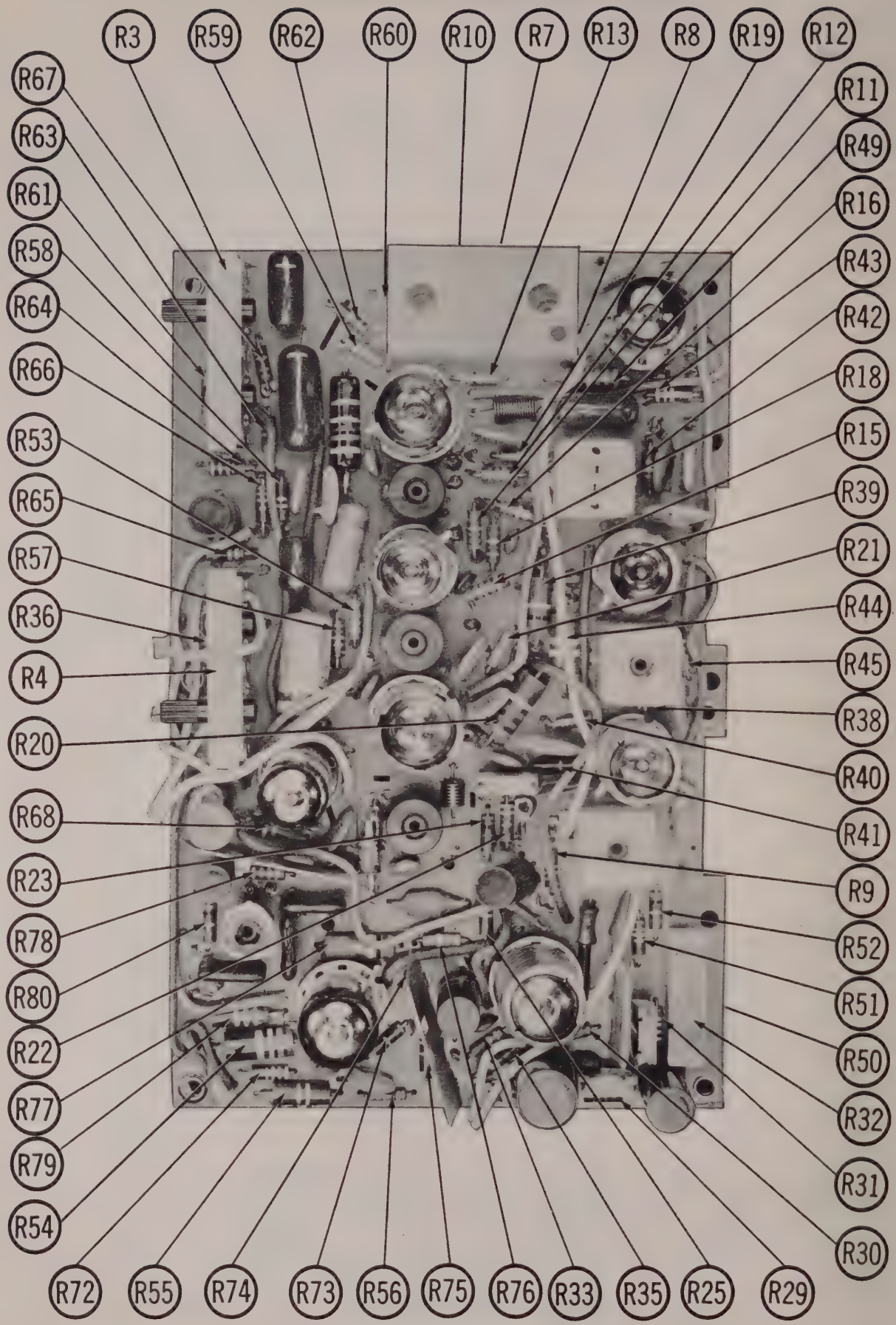


FIG.7

FIG. 8



RESISTOR IDENTIFICATION

TUNER KRK 70 PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V201	RF Amp.	6CY5	

ITEM No.	USE	TYPE	NOTES
V202	Mixer-Osc.	6CQ8	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	RCA Victor PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C201	1000		105660	EF-001	MFT-1000			503C-D1	
C202	330		102089	BPD-00033	DD-331	L10T33	UC-5333	5GA-T33	
C203	.5-3		104052		829-3		CT565A		
C204	68		104224						N750 5%
C205	1000		105660	EF-001	MFT-1000			503C-D1	
C206	330		102089	BPD-00033	DD-331	L10T33	UC-5333	5GA-T33	
C207	82		104214						5%
C208	.5-3		104052		829-3		CT565A		
C209	220		102228		D6-221	L10T22		MS-322	10%
C210	82		106291	1469-000082		22R5Q82		MS-482	10%
C211	2.2		106241						NPO ±.2mmf
C212	7		103523						N330 ±.5mmf
C213	100		103856	1469-0001		22R5T1	MCB235	MS-31	10%
C214	10		103556						N330
C215									
C216	1000		105660	EF-001	MFT-1000			503C-D1	
C217	68		105855		DD-680	L10Q68		MS-468	10%
C218	1000		105660	EF-001	MFT-1000			503C-D1	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		RCA Victor PART No.	NOTES
	OHMS	WATT		
R201	22K 5%			
R202	8200Ω 5%	2		
R203	12K 5%	1		
R204	22K 5%	2		①
R205	2200Ω 5%			

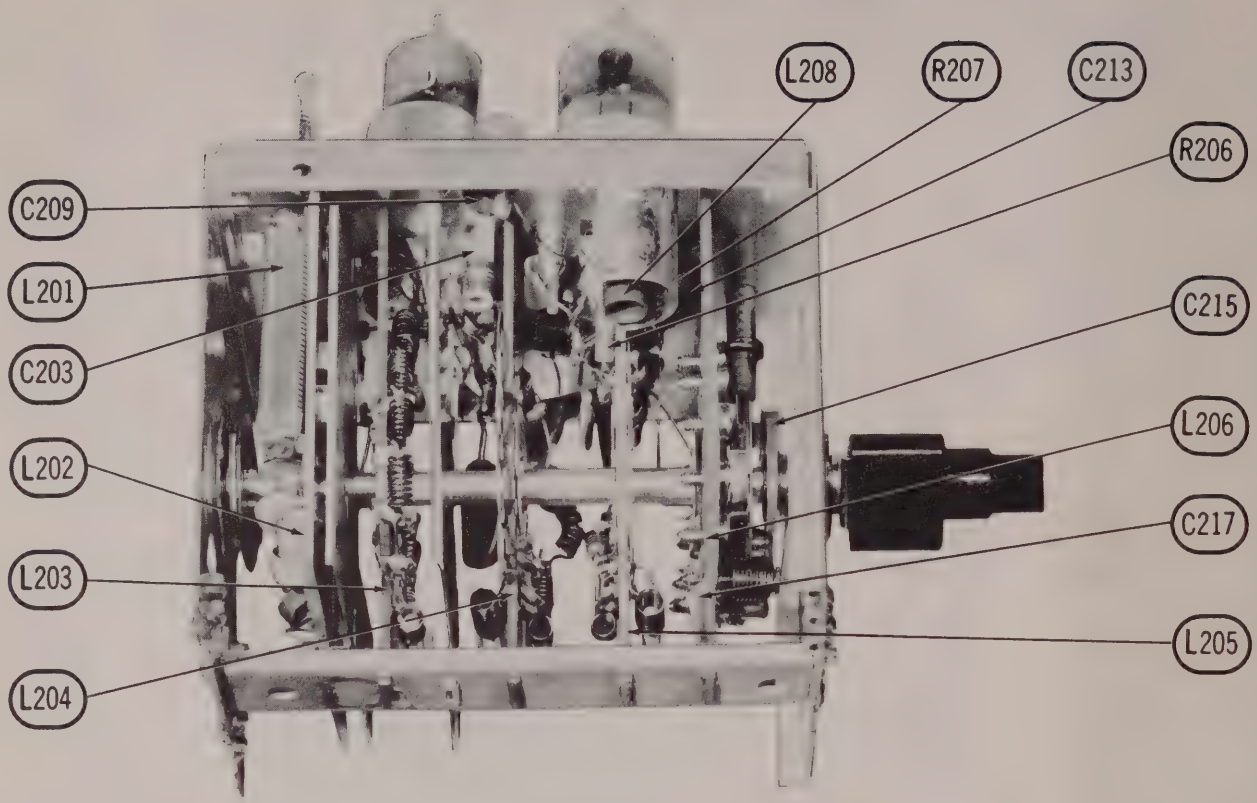
ITEM No.	RATING		RCA Victor PART No.	NOTES
	OHMS	WATT		
R206	15K			
R207	150K			
R208	5600Ω 5%			
R209	2200Ω 5%			

① Tuner KRK70A uses 27K in this application (Part #522327).

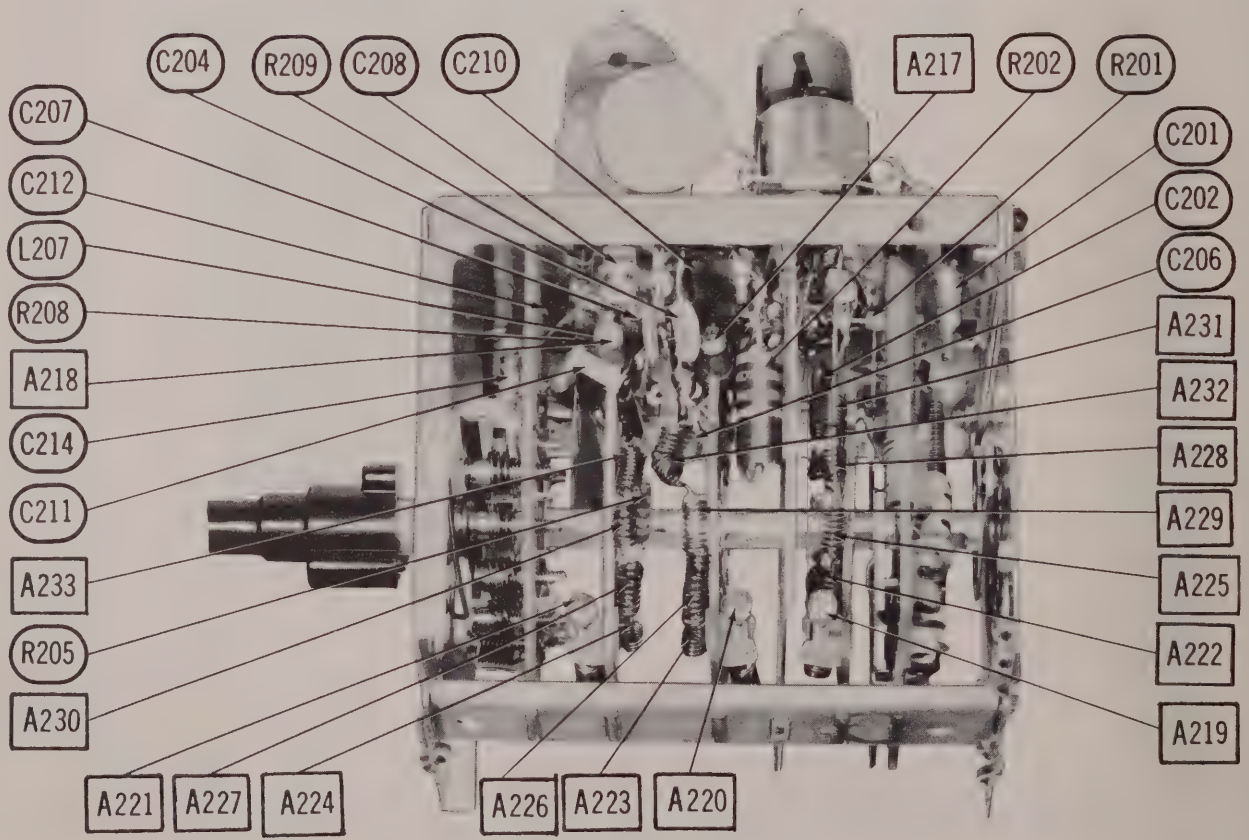
COILS (RF-IF)

ITEM No.	USE	RCA Victor PART No.	NOTES
L201	Ant. Input Trans.	102576	
L202	Ant. Input Assy.	105924	Includes L201
L203	Ant. Coils	106247	Channel 2-13, Includes wafer assy.
L204	RF Coils	106246	Channel 2-13, Includes wafer assy.

ITEM No.	USE	RCA Victor PART No.	NOTES
L205	Mixer Grid Coils	106245	Channel 2-13, Includes wafer assy.
L206	Osc. Coils	106244	Channel 2-13, Includes wafer assy.
L207	RF Choke	106249	
L208	Mixer Plate Coil	106248	



TUNER KRK-70B - LEFT SIDE



TUNER KRK-70B - RIGHT SIDE

TUNER ALIGNMENT INSTRUCTIONS (cont)

VHF RF AND MIXER ALIGNMENT

Connect the negative lead of a 3 volt bias supply to point Ⓣ. Positive to chassis.
Couple RF output cable of the signal generator loosely to the sweep cable to provide markers.
Disconnect link cable from the IF output jack at the tuner and connect a 39Ω resistor across the IF output jack.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Set the Fine Tuning to the center of its range.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
15.	Fig. 204	Across antenna terminals thru matching network (Fig. 204).	183MC	181.25MC 185.75MC	8	Vert. Amp. thru detector probe to point Ⓦ. Low side to chassis.	A215, A216, & High Band Coupling	Adjust for maximum gain and symmetry of response similar to Fig. 206 with markers as shown. A215 adjusts freq., A216 controls tilt. Adjust High Band Coupling coil for proper bandwidth.
16.	"	"	213MC	211.25MC 215.75MC	13	"	A217, A218	Adjust for response similar to Fig. 206 with marker within limits. A217 controls frequency and A218 controls tilt.
17.	Repeat channels 8 and 13 adjustments for proper tracking and response on all channels from 13 to 7. Turn off generators, check oscillator injection voltage by connecting DC probe of VTVM thru diode probe to point Ⓦ. Common to chassis. Injection voltage should be between -1.5 to 4.5V. If not within these limits replace 6CQ8 (V202). Repeat steps 3 thru 16.							
18.	Fig. 204	Across antenna terminals thru matching network (Fig. 204).	Not used	129MC	6	Vert. Amp. thru detector probe to point Ⓦ. Low side to chassis.	A210	Retouch for zero beat.
19.	"	"	85MC	83.25MC 87.75MC	"	"	A219, A220, A221	Adjust in numerical order for response similar to Fig. 206 with markers as shown. First adjustment is for amplitude, second is for frequency and the third controls tilt. Recheck for injection limits as in step 17.
20.	"	"	79MC	77.25MC 81.75MC	5	"	A222, A223, A224	"
21.	"	"	69MC	67.25MC 71.75MC	4	"	A225, A226, A227	"
22.	"	"	63MC	61.25MC 65.75MC	3	"	A228, A229, A230	"
23.	"	"	57MC	55.25MC 59.75MC	2	"	A231, A232, A233	"

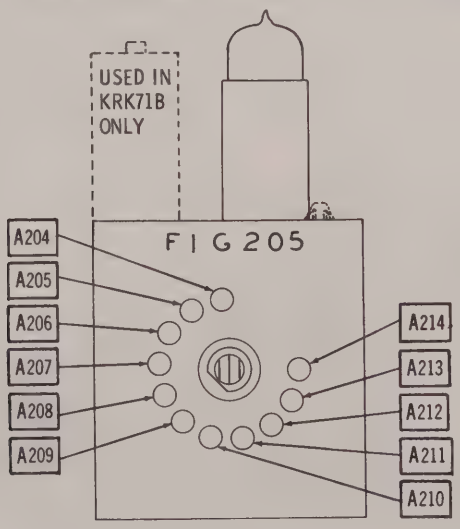


FIG 205

FIG.206A

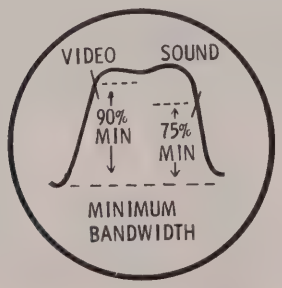


FIG.206B

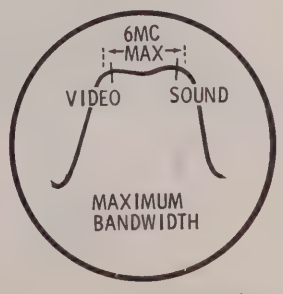
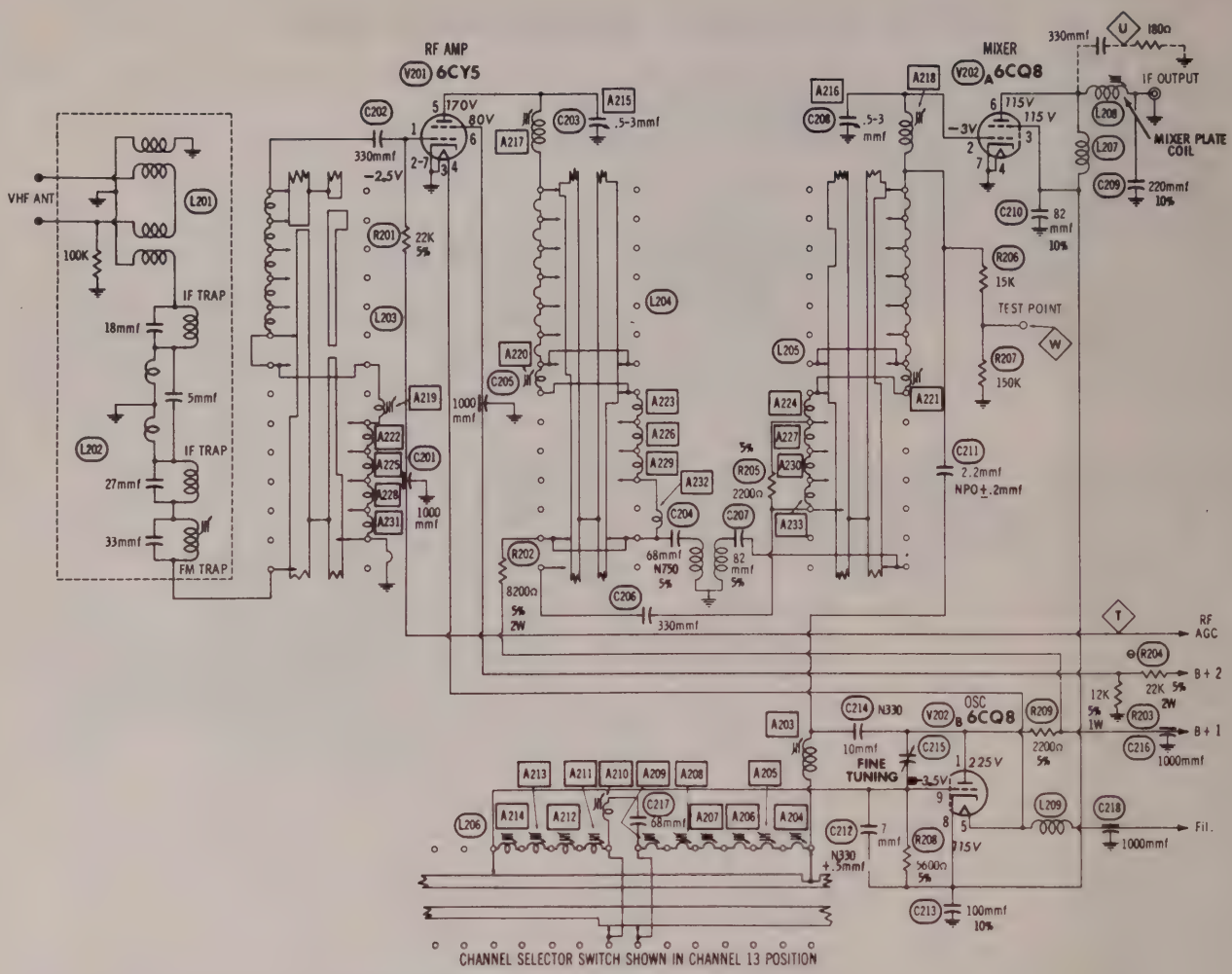


FIG.206C

RCA VICTOR MODELS 14PD9030, U, 14PD9033, U, 14PD9034, U, 14PT9011, U, 14PT9012, U (Ch. KCS120A, B)

FOLDER 2



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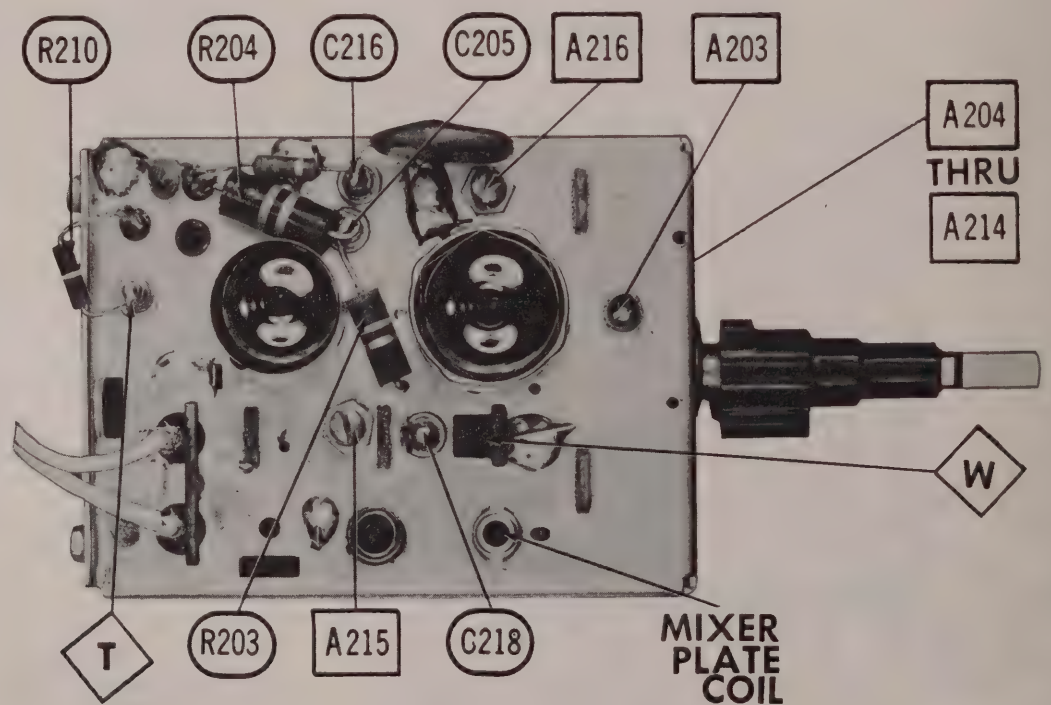
VHF TUNER KRK-70B



TUNER KRK-70B - TOP VIEW

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6CU8	0Ω	††680Ω	††680Ω	.1Ω	0Ω	47Ω	560K	2.8meg	•‡1.5meg
V2	6CB6	70K	††18Ω	.1Ω	0Ω	†680Ω	†680Ω	75K		
V3	6CU8	0Ω	†8200Ω	†8200Ω	0Ω	.1Ω	180Ω	.1Ω	18K	†16K
V4	6AW8A	0Ω	2.8meg	†680K	.1Ω	0Ω	•600Ω	680K	†56K	†4300Ω
V5	6AU6	47K	0Ω	.1Ω	0Ω	†10K	†16K	82Ω		
V6	6DT6	.1Ω	560Ω	.1Ω	0Ω	‡730K	†15K	470K		
V7	6AQ5A	0Ω	680Ω	.1Ω	0Ω	†2500Ω	†2200Ω	0Ω		
V8	6AQ5A	•1.5meg	0Ω	0Ω	.1Ω	†520Ω	†150Ω	•1.5meg		
V9	6CG7	†0Ω	1.3meg	230K	0Ω	.1Ω	†56K	250K	0Ω	0Ω
V10	6DQ6A	NC	0Ω	NC	†15K	900K	TP	.1Ω	27Ω	TOP CAP ‡18Ω
V11	6AX4GT	NC	NC	¶800K	NC	†9Ω	NC	.1Ω	0Ω	
V12	1X2B	PINS 1 THRU 9 HAVE INFINITE RESISTANCE								TOP CAP ‡300Ω
V13	5AS4A	NC	¶	NC	45Ω	NC	48Ω	NC	¶	
V14	14WP4	0Ω	22K	Pin 6 †0Ω	Pin 10 ‡340K	Pin 11 •250K	Pin 12 .1Ω			
V201	6CY5	580K	0Ω	0Ω	.1Ω	†7500Ω	†13K	0Ω		
V202	6CQ8	†2300Ω	160K	INF	0Ω	.1Ω	INF	0Ω	INF	INF
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

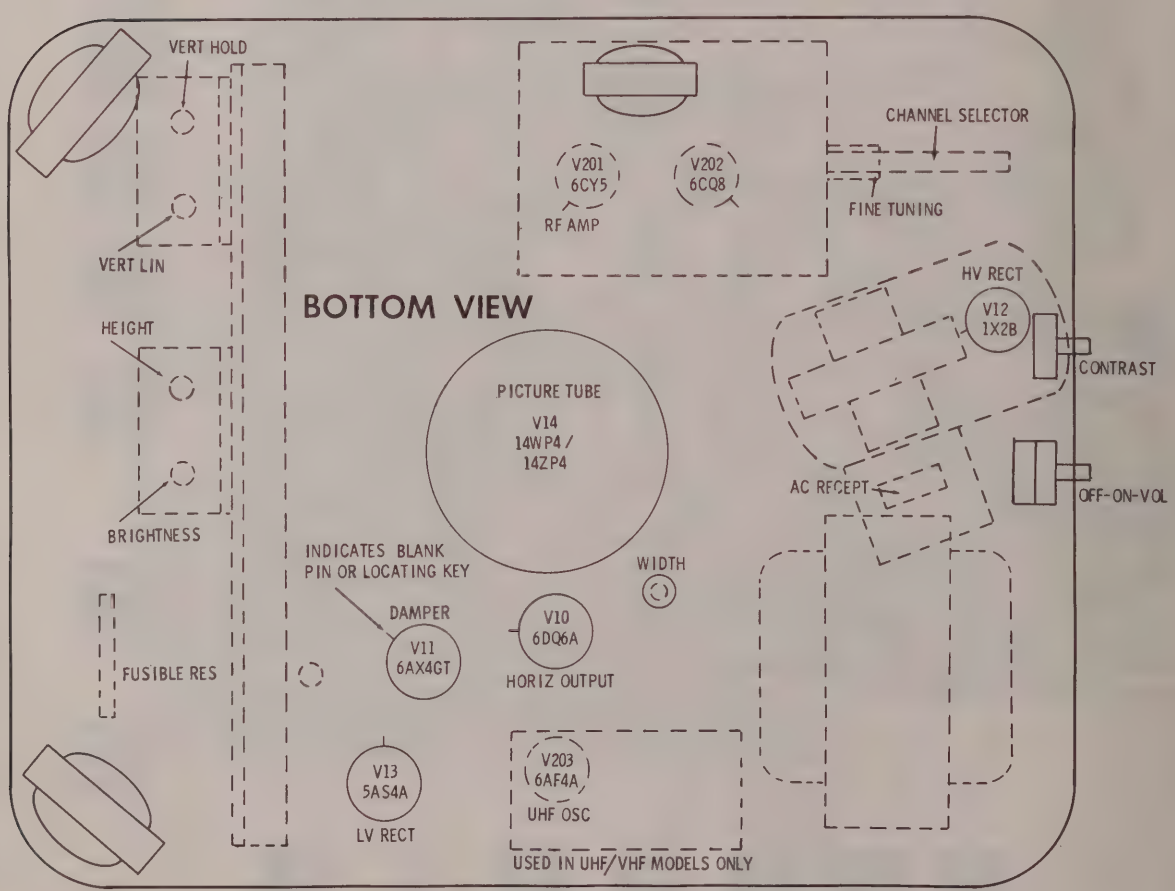
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.

• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.

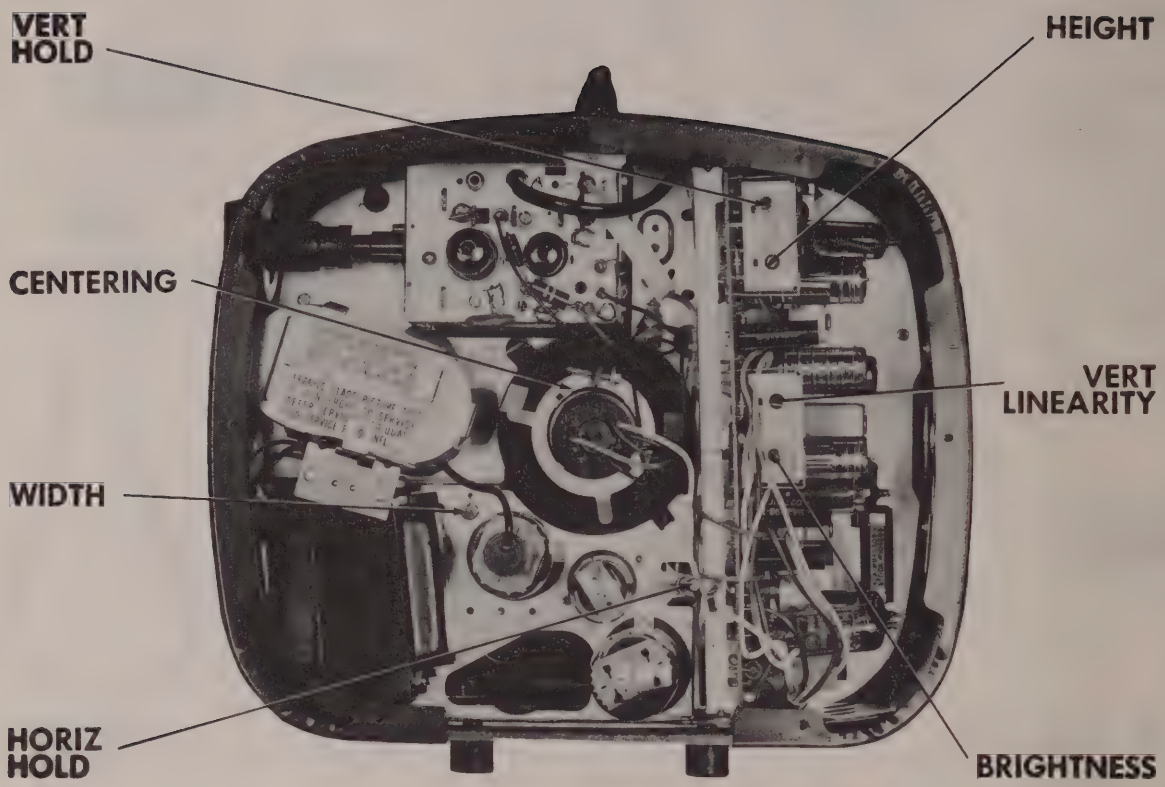
†† MEASURED FROM PIN 7 of V2.

† MEASURED FROM 245V SOURCE. NC NO CONNECTION.

‡ MEASURED FROM PIN 3 OF V11. TP TIE POINT.



TUBE PLACEMENT CHART



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

CHECK OF THE HORIZONTAL OSCILLATOR ADJUSTMENT

Turn the Horizontal Hold fully clockwise. The picture should fall out of sync with approximately eight diagonal bars slanting down to the left. Turn the Horizontal Hold counterclockwise slowly. The number of bars will gradually reduce and when only one and a half to three bars are obtained, the picture will pull into sync with only a SLIGHT additional counterclockwise turn of the Horizontal Hold. Continue turning the Horizontal Hold counterclockwise until the picture falls out of sync. Rotation beyond fallout position should produce between 2 and 5 bars before full counterclockwise rotation.
If the receiver passes this check and the picture is normal and stable, the Horizontal Oscillator is properly adjusted. Skip "Adjustment of Horizontal Oscillator".

ADJUSTMENT OF HORIZONTAL OSCILLATOR

If in the above check the receiver failed to hold sync over two-thirds turn of counterclockwise rotation of the Horizontal Hold from pull-in point, it will be necessary to make the following adjustments.
The Width slug should be properly adjusted before attempting to adjust the Waveform coil.
Set the Waveform slug (B2) fully counterclockwise.
Adjustment of the Horizontal Hold in the counterclockwise direction will show a multiple number of bars before "Motorboat" occurs. Adjust B2 until 3 bars are present before "Motorboat" occurs, as the Horizontal Hold is rotated counterclockwise from the fallout point.

WIDTH ADJUSTMENT

Turn the set on and tune in a TV station, preferably with a test pattern. Adjust the Width slug (B1) to fill the picture mask with a line voltage of 105 volts. With normal line voltage of 117 volts, adjust B1 for an overscan of approximately $\frac{1}{2}$ inch on each side of the screen. This adjustment should be made with the Brightness control set at normal level.

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 2 push-on type knobs from the front, 5 from the side.
2. Remove 6 wood screws holding the rear cover, tuner antenna leads and the rear cover.
3. Remove the picture tube socket, HV lead, yoke plug, speaker leads, power supply and tuner leads.
4. Remove 2 bolts from the bottom holding the power supply. Remove the power supply.
5. Remove 2 wood screws holding the side control panel and 1 holding the rear control panel.
6. Remove 2 metal screws from the side chassis braces.
7. Remove 2 bottom chassis bolts.
8. Remove the chassis.

CAUTION NOTE

ONE SIDE OF AC LINE CONNECTED TO CHASSIS
Care should be exercised when connecting test equipment or physically contacting the chassis.

MODEL 721-T-661 (CH. 743-38)

TRAV-LER MODELS 721-K-671, U, 721-LP-701, U, 721-T-661, U (Ch. 743-38)

TRADE NAME	Trav-Ler	MODELS	CHASSIS
		721-K-671, U, 721-LP-701, U, 721-T-661, U	743-38
MANUFACTURER	Trav-Ler Radio & Tele. Corp., 571 W. Jackson Blvd., Chicago 6, Illinois		
TYPE SET	Television Receiver		
TUBES	Seventeen		
POWER SUPPLY	110-120 Volts AC, 60 Cycle	RATING 180 Watts, 1.64 Amp. @ 117 Volts AC	
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF Oscillator is possible by removing the plug on upper right side of cabinet, and supplying power to the receiver. Set the Fine Tuning at the center of its range. The adjustments are accessible, one at a time, thru a hole in the right side of the tuner rear cover as viewed from the rear. Adjust for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

Remove the wood screws holding the trim strip at the top edge of the safety glass. Tilt glass out at the top and lift up to remove.

SPECIAL ADJUSTMENTS

A. AGC
Observe the picture and advance the AGC Control to a point where the picture distorts or a buzz is heard in the sound. Back off from this setting until the picture becomes stable with no noise in the sound.

B. Focus
No provision is made to vary the focus on this receiver.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

For adjustment of the Horizontal Oscillator, it is necessary to remove the rear cover and supply power to set. Set the Horizontal Hold at the center of its range and adjust the Horizontal Frequency slug (B1) until the picture synchronizes horizontally. (For location, see tube placement chart.)

FUSE DEVICE

A 5.6Ω fusible resistor (R82) is used for low voltage power supply protection. For location, see tube placement chart.

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

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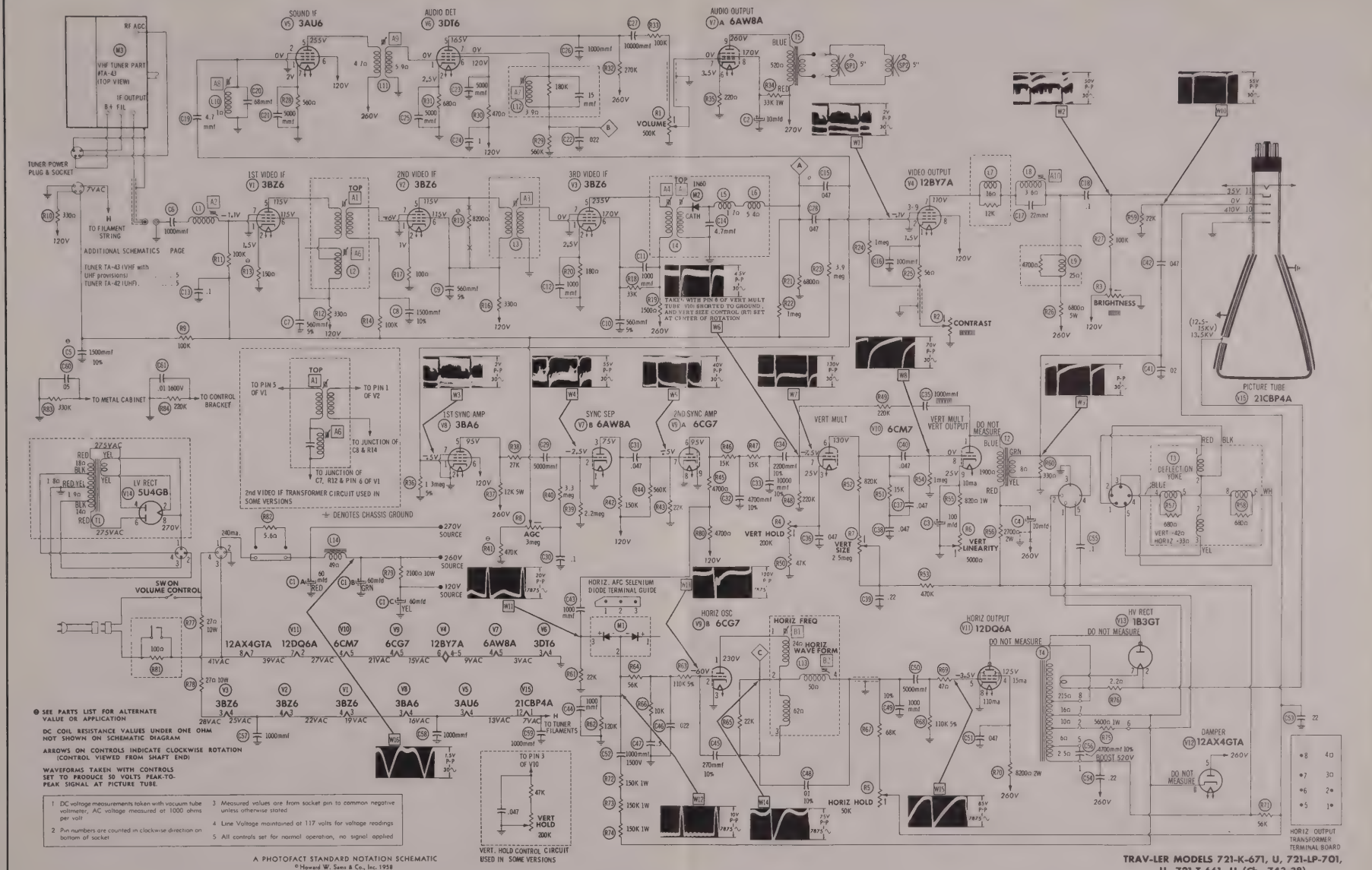
H696


SOUND IF V5 3AU6
AUDIO DET V6 3DT6
AUDIO OUTPUT V7A 6AW8A
RF AGC
VHF TUNER PART #TA-43 (TOP VIEW)
IF OUTPUT
B+ FIL
TUNER POWER PLUG & SOCKET
VOLUME 500K
1ST VIDEO IF V1 3BZ6
2ND VIDEO IF V2 3BZ6
3RD VIDEO IF V3 3BZ6
VIDEO OUTPUT V4 12BY7A
TO FILAMENT STRING
ADDITIONAL SCHEMATICS PAGE
TUNER TA-43 (VHF with UHF provisions)
TUNER TA-42 (UHF)
CONTRAST
BRIGHTNESS
PICTURE TUBE V15 21CBP4A
TO METAL CABINET
TO CONTROL BRACKET
TO PIN 5 OF V1
TO PIN 1 OF V2
TO JUNCTION OF C8 & R14
TO JUNCTION OF C7, R12 & PIN 6 OF V1
2nd VIDEO IF TRANSFORMER CIRCUIT USED IN SOME VERSIONS
DENOTES CHASSIS GROUND
1ST SYNC AMP V8 3BA6
SYNC SEP V7B 6AW8A
2ND SYNC AMP V5A 6CG7
VERT MULT V10 6CM7
VERT MULT VERT OUTPUT
DO NOT MEASURE
DEFLECTION YOKE
VERT HOLD 200K
VERT SIZE 2.5meg
VERT LINEARITY 5000Ω
AGC 3meg
LV RECT 5U4GB
275VAC
270V SOURCE
260V SOURCE
120V SOURCE
SW ON VOLUME CONTROL
HORIZ. AFC SELENIUM DIODE TERMINAL GUIDE
HORIZ OSC V9B 6CG7
HORIZ FREQ
HORIZ WAVE FORM
HORIZ OUTPUT V11 12DQ6A
HV RECT V13 1B3GT
DAMPER V12 12AX4GTA
BOOST 520V
HORIZ HOLD 50K
TO TUNER FILAMENTS
TO PIN 3 OF V10
VERT. HOLD CONTROL CIRCUIT USED IN SOME VERSIONS
HORIZ OUTPUT TRANSFORMER TERMINAL BOARD
12AX4GTA 8A7 41VAC
12DQ6A 7A2 39VAC
6CM7 4A5 27VAC
6CG7 4A5 21VAC
12BY7A 6 4-5 15VAC
6AW8A 4A5 9VAC
3DT6 3A4 3VAC
3BZ6 3A4 28VAC
3BZ6 4A3 25VAC
3BZ6 4A3 22VAC
3BA6 3A4 19VAC
3AU6 3A4 16VAC
21CBP4A 12A1 13VAC
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.
1 DC voltage measurements taken with vacuum tube voltmeter, AC voltage measured at 1000 ohms per volt
2 Pin numbers are counted in clockwise direction on bottom of socket
3 Measured values are from socket pin to common negative unless otherwise stated
4 Line Voltage maintained at 117 volts for voltage readings
5 All controls set for normal operation, no signal applied
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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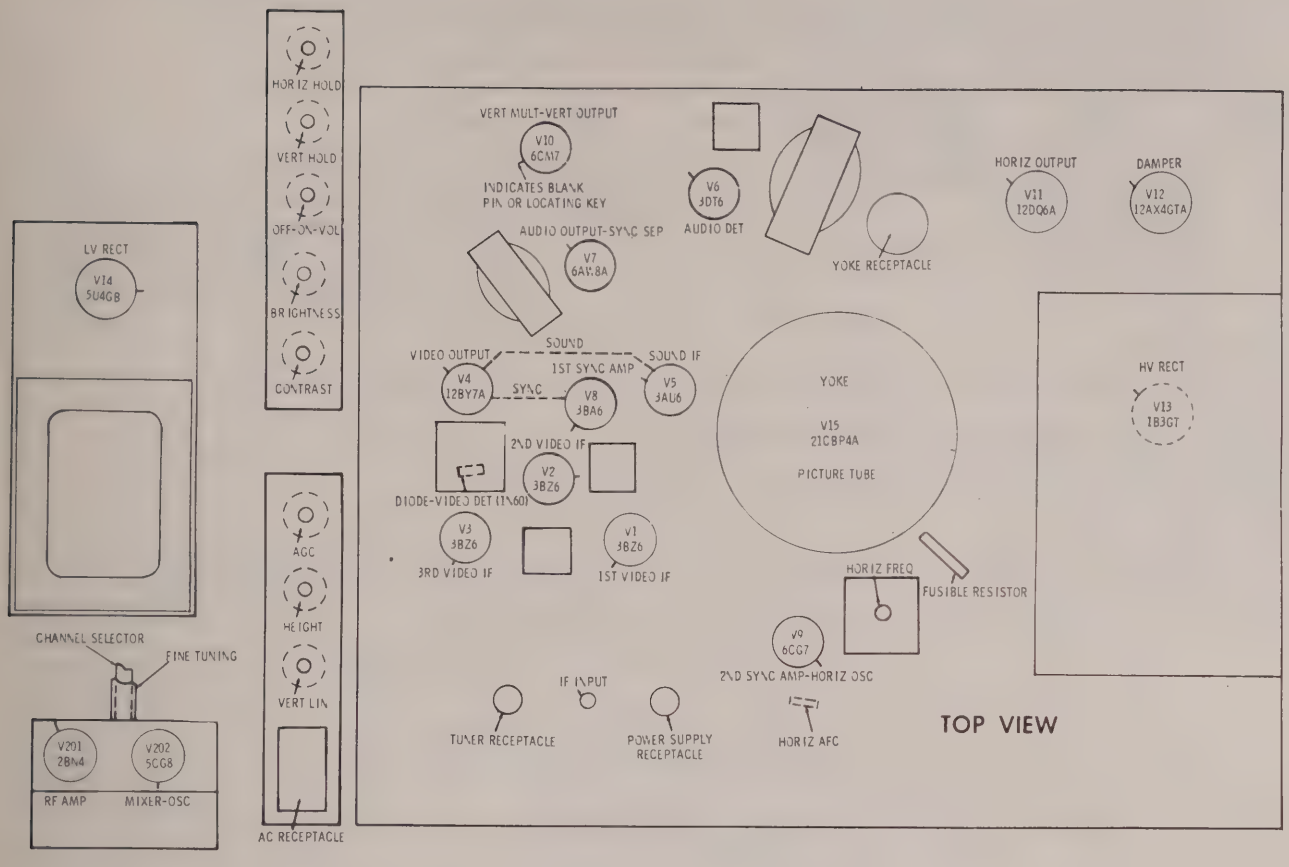
TRAV-LER MODELS 721-K-671, U, 721-LP-701, U, 721-T-661, U (Ch. 743-38)

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

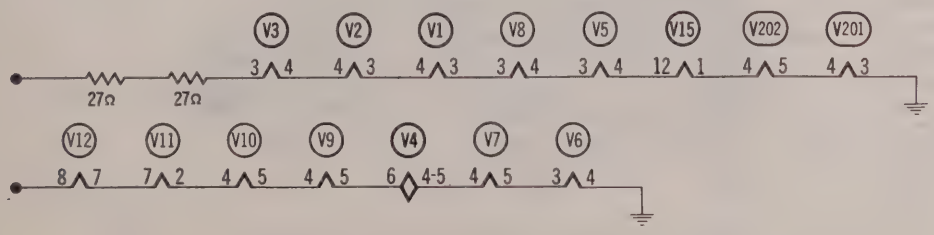
POWER SUPPLY FAILURE
No raster, no sound Fusible Resistor (R82), V14

SWEEP FAILURE
No raster, has sound Rectifier (M1), V9, V11, V12, V13, V15
No vertical deflection V10
Poor vert. linearity or foldover V10
Poor horiz. linearity or foldover V9, V11, V12
Narrow picture V9, V11, V12, V14
Vert. off freq. V10
Horiz. off freq. V9

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, Diode (M2)
No pic, no sound, has snow V201, V202, V1
No pic, has sound, has raster V4, V15
Has pic, no sound V5, V6, V7

SYNC FAILURE
No vert. sync V7, V8, V9
No horiz. sync V7, V8, V9, M1
No vert. or horiz. sync V7, V8, V9

This receiver employs tubes used in a series filament network, an open filament in any tube will cause the set to be inoperative. (See circuit below.)



ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT.
The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.

VIDEO IF ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.
Set the Contrast Control fully counterclockwise.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	Place a thin insulated metal strip between the Mixer-Osc. tube (V202), and tube shield. Connect the high side of sweep generator to the metal strip. Low side to chassis.	44.0MC (10MC Swp)	41.25MC 42.25MC 45.75MC	Any non-interfering channel	Vert. Amp. thru 10K to point (A). Low side to chassis. (Across Video Det. load.)	A1, A2, A3, A4, A5, A6, & Mixer Plate Coil	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown . A1 adjusts low frequency side of curve, A2 and A3 adjusts high frequency side, A4 is adjusted for proper tilt, A5 is adjusted for MINIMUM dip, A6 is adjusted to place 41.25MC marker in trap notch and Mixer Plate Coil is adjusted for maximum gain.

SOUND IF ALIGNMENT

Tune in a strong TV signal and adjust A7 for maximum undistorted sound. If two peaks occur, connect the DC probe of the VTVM to point (B) . Common to chassis.
Adjust to the peak that produces the highest deflection on the VTVM.
Reduce the signal strength (by disconnecting the antenna or connecting an attenuator in series with the antenna) until noise is heard in the sound.
Adjust A8 and A9 for maximum undistorted sound.
Reduce the signal strength even further and retouch A8 and A9 for maximum undistorted sound.
If necessary, repeat the above procedure.

4.5MC TRAP ALIGNMENT

Tune in a TV signal and adjust Fine Tuning until a 4.5MC beat pattern is visible in the picture. Adjust A10 until the horizontal scanning lines are smooth and continuous.

TUNER ALIGNMENT INSTRUCTIONS LOCATED ON PAGE 6.

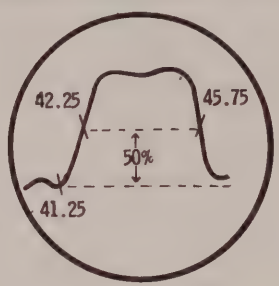
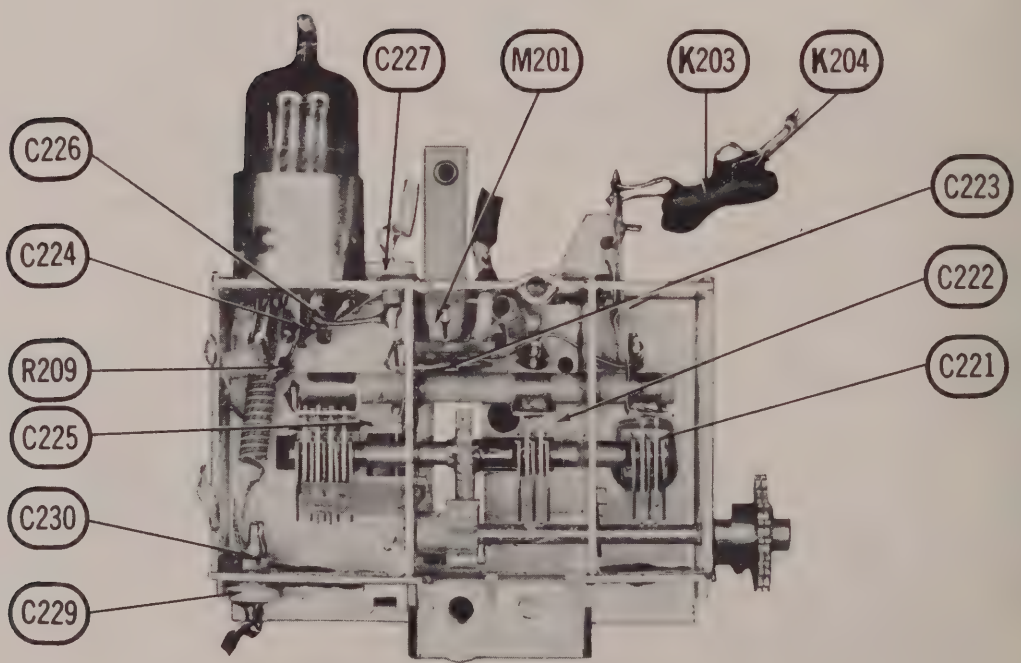
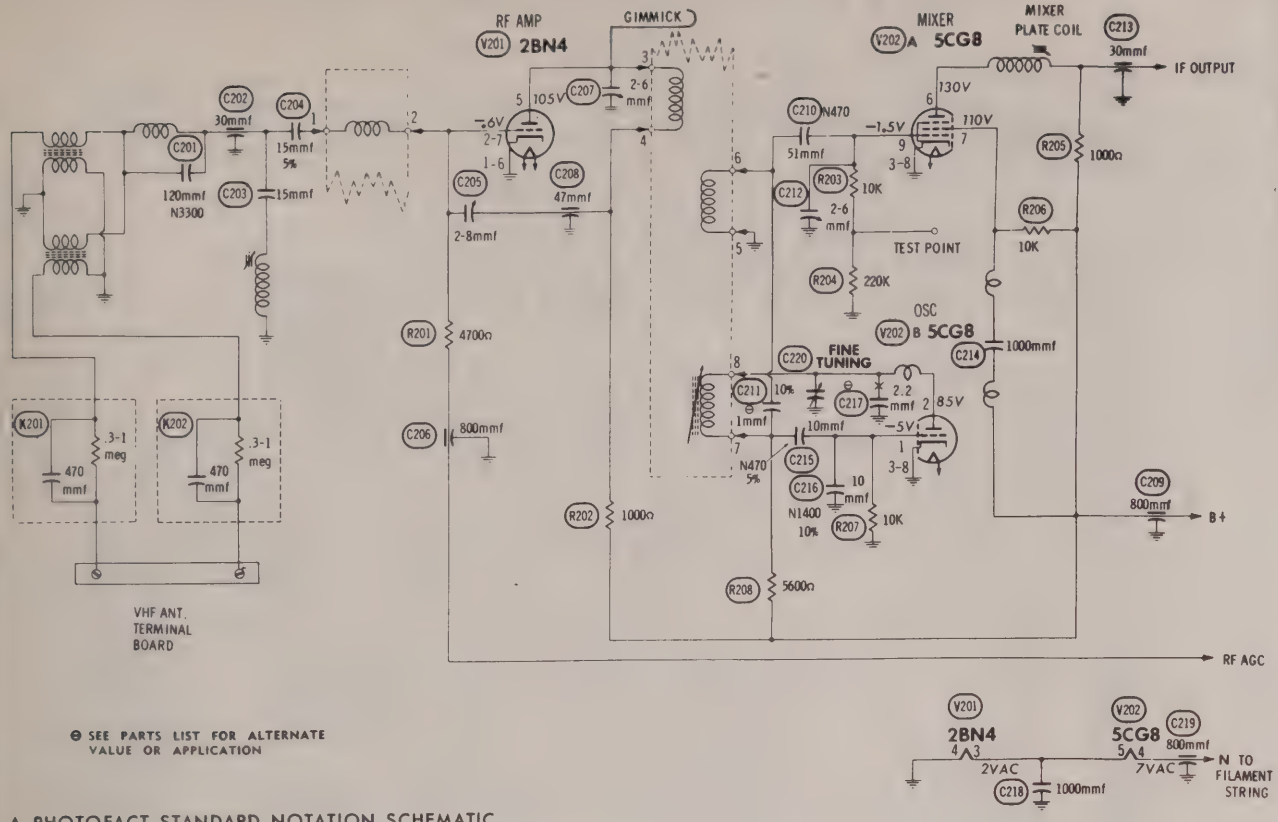


FIG. 1



UHF TUNER



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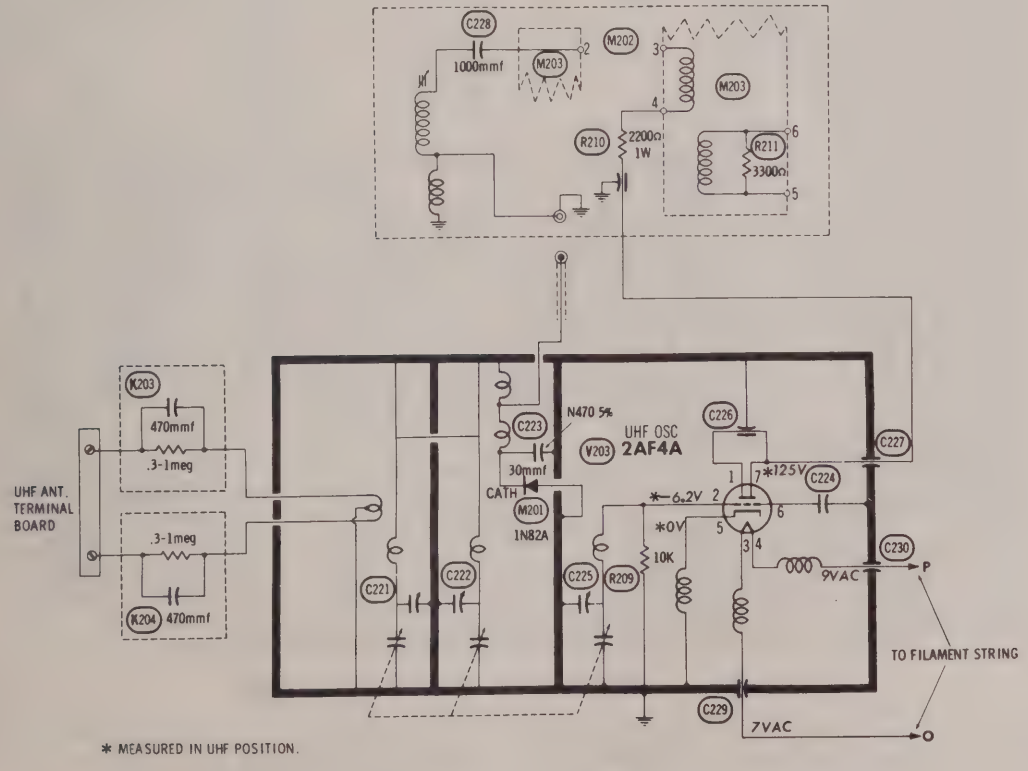
VHF TUNER #TA-40, -43, -44



* MEASURED IN UHF POSITION.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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REAR COVER #FCN-042 & UHF TUNER #TA-42

TUNER PARTS LIST AND DESCRIPTIONS

TA-40-43-44

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V201	RF Amp.	2BN4	
V202	Mixer-Osc.	5CG8	

ITEM No.	USE	TYPE	NOTES
V203	UHF Osc.	2AF4A	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	TRAV-LER PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C201	120								N3300
C202	30								
C203	15			DI 15	DD-150	L10T15	UC-5415	5GA-Q15	
C204	15				DTZ-15				5%
C205	2-8								
C206	800								
C207	2-6								
C208	47								
C209	800								
C210	51								N470
C211	1								10% ①
C212	2-6								
C213	30								
C214	1000			BPD-001	DD-102	BYA6D1	DC521	5HK-D1	
C215	10								N470 5%
C216	10								N1400 10%
C217	2.2				DTZ-2R2	CTA6V22C		5TCCB-V22	②
C218	1000			BPD-001	DD-102	BYA6D1	DC521	5HK-D1	
C219	800								
C220									
C221									
C222									
C223	30								N470 5%
C224									
C225									
C226									
C227									
C228	1000			BPD-001	DD-102	BYA6D1	DC521	5HK-D1	
C229									
C230									

① Some versions may use 1.5mmf in this application.
② Not used in some versions.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		TRAV-LER PART No.	NOTES
	OHMS	WATT		
R201	4700Ω			
R202	1000Ω			
R203	10K			
R204	220K			
R205	1000Ω			
R206	10K			

ITEM No.	RATING		TRAV-LER PART No.	NOTES
	OHMS	WATT		
R207	10K			
R208	5600Ω			
R209	10K			
R210	2200Ω	1		
R211	3300Ω			

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	TRAV-LER PART No.	REPLACEMENT DATA	
K201	Ant. Filter (VHF)	470mmf, .3-1meg		Centralab	RC-471
				Sprague	R-9177
K202	Ant. Filter (VHF)	470mmf, .3-1meg		Centralab	RC-471
				Sprague	R-9177
K203	Ant. Filter (UHF)	470mmf, .3-1meg		Centralab	RC-471
				Sprague	R-9177
K204	Ant. Filter (UHF)	470mmf, .3-1meg		Centralab	RC-471
				Sprague	R-9177

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		TRAV-LER PART No.	CBS PART No.	SYLVANIA PART No.	
M201	1N82A		1N82A	1N82A	UHF Mixer (Clip-in)

MISCELLANEOUS

ITEM No.	PART NAME	TRAV-LER PART No.	NOTES
M202	Cover	FCN-042	UHF
M203	Contacts	23A-148	Extension (For UHF position)

TUNER ALIGNMENT INSTRUCTIONS

VHF OSCILLATOR ALIGNMENT

Touch-up adjustment of the VHF Oscillator is possible by removing the rear cover, and supplying power to the receiver. Set the Fine Tuning at the center of its range. The adjustments are accessible, one at a time, thru a hole in the right side of the tuner rear cover as viewed from the rear. Adjust for best picture and sound.

VHF RF AND MIXER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

UHF TUNER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	1st. Video IF Amp.	3BZ6	
V2	2nd Video IF Amp.	3BZ6	
V3	3rd Video IF Amp.	3BZ6	
V4	Video Output	12BY7A	
V5	Sound IF Amp.	3AU6	
V6	Audio Det	3DT6	
V7	Audio Output-Sync Sep.	6AW8A	
V8	1st. Sync Amp.	3BA6	
V9	2nd. Sync Amp. -Horiz. Osc	6CQ7	
V10	Vert. Mult. -Vert. Output	6CM7	
V11	Horiz. Output	12DQ6A	
V12	Damper	12AX4GTA	
V13	HV Rectifier	1B3GT	
V14	LV Rectifier	5U4GB	

PICTURE TUBE

ITEM No	REPLACEMENT DATA				NOTES
	TRAV-LER PART No	GENERAL ELECTRIC PART No	RCA PART No	SYLVANIA PART No	
V15	21CBP4A		21CBP4A ①	21CBP4/ ② 21CBP4A ②	① "Silverama" ② ② "Silver Screen 85"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT	TRAV-LER PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No	PYRAMID PART No	SANGAMO PART No.	SPRAGUE PART No.
C1A	60	300	EC-80	PR3-020				Q-011.1	R294 *
B	60	300						MT-3580	
C	60	300							
C3	10	300	EC-57	PRS350V10	BRI045	TC62	TD-10-450	MT-4510	TVA-1604
C3	100	50	EC-81	PRS50V100	BRI005	TC3501	TD-100-50	MT-05100	TVA-1310
C4	10	300	EC-57	PRS350V10	BRI045	TC62	TD-10-450	MT-4510	TVA-1604

* Non-catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	TRAV-LER PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.		
C5	1500					1R5D15	MCB456	MS-215		10% ①
C6	1000			BPD-001	DD-102	BYA5D1	DC521	5HK-D1		
C7	560		CC-57			1R5T56		MS-356		5%
C8	1500					1R5D15	MCB456	MS-215		10%
C9	560		CC-57			1R5T56		MS-356		5%
C10	560		CC-57			1R5T56		MS-356		5%
C11	1000			BPD-001	DD-102	BYA5D1	DC521	5HK-D1		
C12	1000			BPD-001	DD-102	BYA5D1	DC521	5HK-D1		
C13	.1	200		P288N-1	DF-104	CUB32P1	GEM-3Q1	2TM-P1		
C14	4.7			NPO-S14.7	TCZ-4R7	CTA6Y47C	ZT-5547	5TCCB-Y47		
C15	.047	200		P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47		
C16	100			5I100	D5-101	LT5T1	UC-531	5GA-T1		
C17	22			5I 22	D5-220	LT5Q22	UC-5422	5GA-Q22		
C18	.1	400		P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1		
C19	4.7			NPO-S14.7	TCZ-4R7	CTA6Y47C	ZT-5547	5TCCB-Y47		
C20	68			5I 68	D5-680	LT5Q68	UC-5468	5GA-Q68		
C21	5000			BPD-005	DD-502	BYA10D5	DC525	5HK-D5		
C22	.022	200		P288N-022	DD-303	CUB4S22	GEM-4122	2TM-S22		
C23	5000			BPD-005	DD-502	BYA10D5	DC525	5HK-D5		
C24	.1	400		P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1		
C25	5000			BPD-005	DD-502	BYA10D5	DC525	5HK-D5		
C26	1000			BPD-001	DD-102	BYA5D1	DC521	5HK-D1		
C27	1000			BPD-01	DD-103	BYA5E1	DC511	5HK-S1		
C28	.047	200		P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47		
C29	5000			BPD-005	DD-502	BYA10D5	DC525	5HK-D5		
C30	.1	200		P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1		
C31	.047	200		P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47		
C32	4700					1R5D47		MS-247		10%
C33	10000			BPD-01	DD-103	BYA5E1	DC511	5HK-S1		10%
C34	2200			1464-0022		1R5D22		MS-222		10%
C35	1000	2000	CC-98							10%
C36	.047	200		P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47		
C37	.047	200		P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47		
C38	.047	600		P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47		
C39	.22	600		P688N-22		CUB6P22	GEM-6022	6TM-P22		
C40	.047	600		P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47		
C41	.02	600		P688N-02	DD-303	CUB662	GEM-612	6TM-S2		
C42	.047	600		P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47		
C43	1000			BPD-001	DD-102	BYA5D1	DC521	5HK-D1		
C44	1000			BPD-001	DD-102	BYA5D1	DC521	5HK-D1		
C45	270		MC-22	1469-00027	D5-271	5R5T27		MS-327		10%
C46	.022	400		P488N-022	DD-303	CUB4S22	GEM-4122	4TM-S22		
C47	.5	200		P288N-5		CUB2P5	GEM-205	2TM-P5		
C48	.01	600	PC-29				GEM-1611			10%
C49	1000			1464-001		1R5D1	MCB255	MS-21		10%
C50	5000			BPD-005	DD-502	BYA10D5	DC525	5HK-D5		
C51	.047	400		P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47		
C52	1000	1500	CC-53	HVD-15-1000	DD30-102	HVB15D1	DC301	30EKD-D1		
C53	.22	600		P688N-22		CUB6P22	GEM-6022	6TM-P22		
C54	.22	600		P688N-22		CUB6P22	GEM-6022	6TM-P22		
C55	.1	400		P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1		
C56	4700			1464-0047		1R5D47		MS-247		10%
C57	1000			BPD-001	DD-102	BYA5D1	DC521	5HK-D1		
C58	1000			BPD-001	DD-102	BYA5D1	DC521	5HK-D1		
C59	1000			BPD-001	DD-102	BYA5D1	DC521	5HK-D1		
C60	.05	400		P488N-05	DF-503	CUB4S5	GEM-415	4TM-S5		
C61	.01	1600	PC-33C	P1688N-01	DD16-103	CUB1661	GEM-1611	MB-S1		

① Some versions use 1000mmf in this application.

CONTROLS

ITEM No	RATING		REPLACEMENT DATA						INSTALLATION NOTES
	RESISTANCE	WATTS	TRAV-LER PART No	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.		
R1	500 K	½	VC-120				PP58A		Volume & Sw (Push-Pull)
R2A	1000Ω	½	VC-82	B-505		BL7-206	U3		Contrast
B	Shaft			Not Req.		BK1	Not Req.		
R3A	100 K	½	VC-122	B-40	A47-100K-S	QU-128	TA15L		Brightness
B	Shaft			Not Req.	KS8-3	Not Req.	Not Req.		
R4A	200 K	½	VC-132	B-46	A47-200K-S	QU-129	TA284L		Vert. Hold
B	Shaft			Not Req.	KS8-3	Not Req.	Not Req.		
R5A	50 K	½	VC-83	B-31	A47-50K-S	QU-123	TA54L		Horiz. Hold
B	Shaft			Not Req.	KS8-3	Not Req.	Not Req.		
R6A	5000Ω	½	VC-85	AB-10	B47-5000-S	QU-114	SU-14		Vert. Lin.
B	Shaft			AK-19	Not Req.	TQ	Not Req.		
R7A	2.5meg	½	VC-78	AB-53	B47-2.5meg-S	QU-239	SU-585		Vert. Size
B	Shaft			AK-19	Not Req.	TQ	Not Req.		
R8A	3meg	½	VC-131	AB-54	B47-3meg-S	QU-140	PTA355L		AGC
B	Shaft			AK-19	Not Req	TQ	Not Req.		

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		TRAV-LER PART No.	NOTES
	OHMS	WATT		
R9	100K			
R10	330Ω			
R11	100K			
R12	330Ω			
R13	150Ω			Note 1
R14	100K			
R15	8200Ω			
R16	330Ω			
R17	100Ω			
R18	33K			
R19	1500Ω			
R20	180Ω			
R21	6800Ω			
R22	1meg			
R23	3.9meg			
R24	1meg			
R25	56Ω			
R26	6800Ω	5	WR-8	
R27	100K			
R28	560Ω			
R29	560K			
R30	470Ω			
R31	680Ω			
R32	270K			
R33	100K			
R34	33K	1		
R35	2200Ω			
R36	1.3meg 5%			
R37	12K	5	WR-37	
R38	27K			
R39	2.2meg			
R40	3.3meg			
R41	470K			Note 2
R42	150K			
R43	22K			
R44	560K			
R45	4700Ω			
R46	15K			

ITEM No.	RATING		TRAV-LER PART No.	NOTES
	OHMS	WATT		
R47	15K			
R48	220K			
R49	220K			
R50	47K			
R51	15K			
R52	820K			
R53	470K			
R54	1meg			
R55	820Ω	1		
R56	2700Ω	2		
R57	680Ω			
R58	680Ω			
R59	22K			
R60	330Ω			
R61	22K			
R62	120K			
R63	110K 5%		IR-147	
R64	56K			
R65	22K			
R66	10K			
R67	68K			
R68	110K 5%		IR-147	
R69	47Ω			
R70	8200Ω	2		
R71	56K			
R72	150K	1		
R73	150K	1		
R74	150K	1		
R75	5600Ω	1		
R76	2.2Ω			
R77	27Ω	10	WR-26	
R78	27Ω	10	WR-26	
R79	2100Ω	10	WR-26	
R80	4700Ω			
R81	100Ω		F-9	
R82	5.6Ω		F-8-1	
R83	330K			
R84	220K			

Note 1. Some versions use 56Ω in this application.
Note 2. Some versions use 330K in this application.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		TRAV-LER PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	1st. Video IF	L-82	17-4534	TV-131		VF-4	
L2A	2nd. Video IF	L-103					
B	41.25MC Trap						
L3	3rd. Video IF	L-104	17-5004	TV-126	6234		
L4	4th. Video IF	L-84					
L5	RF Choke	L-86	19-1005	BC-566	4612		3.2 Microhenries
L6	Series Peaking Coil	L-97	19-7068	TV-186	6172		65 Microhenries
L7	Series Peaking Coil	L-66A	19-3500 *	TV-188 *	6136 *	VP-8 *	478 Microhenries, wound on 12K resistor
L8	4.5MC Trap	L-89	20-1004	TV-151	1469 ▲	SF-3	
L9	Shunt Peaking Coil	L-88	19-5100 ▲		6158 ♦		1075 Microhenries, wound on 4700Ω resistor
L10	1st. Sound IF	L-90	17-3400	TV-151	1469 ▲	SF-3	
L11	2nd. Sound IF	L-80A		TV-149			
L12	Quadrature Coil	L-110			1461 ●	SD-5 ●	Includes Cap. & Resistor

* Parallel with a 12K resistor.
▲ Disregard tap.
♦ Parallel with 4700Ω resistor.
▲ Parallel with 8200Ω resistor.
● Parallel with 180K resistor.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.		REPLACEMENT DATA						NOTES
	PRI.	SEC.	TRAV-LER PART No.	Meissner PART No.	Merit PART No	Miller PART No.	Ram PART No.	Thordarson PART No.	
L13	86Ω *		L-119A						* Tapped ② 62Ω Waveform Coil -50Ω

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA						
	CURRENT (Measured)	DC RES.	INDUCTANCE @ CURRENT 1000 ~(.)	TRAV-LER PART No.	Halldorson PART No.	Merit PART No	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L14	.240A	49Ω	1 Hy.	FC-5	C5037 ①	C-2974 ①	F-803 ①	C-2326 ①	26C41	C-34X

① Drill new mounting hole.

TRANSFORMER (POWER)

ITEM No	RATING			REPLACEMENT DATA						
	PRI	SEC 1	SEC 2	TRAV-LER PART No	Halldorson PART No.	Merit PART No.	Ram PART No	Stancor PART No	Thordarson PART No	Triad PART No
T1	530VCT @ 260A with 117VAC taps @ 1.64A	5VAC @ 3A		TR-35		P-3080				

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	REPLACEMENT DATA							NOTES
		TRAV-LER PART No	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No	
T2	Vert. Output	TR-25A	Z1806 ①	A-3039 ③	V312 ①	A-8141 ①	26S54 ③	A-114X	
T3	Yoke-Vert. (40MH) (900)-Horiz. (2 MH)	L-81A	DF607 ②③	MDF-93 ③③	Y90T19/43 ③③	DY-18A ③③	Y-18 ③③	Y-41 & NW8 ①	
	Yoke Rear Cover & Centering Device	MP-77						YC-1 & CL-1	
T4	Horiz. Output	TR-24						D-129 *	

① Disconnect yoke socket pin #3 from ground. Connect blue lead to plate, red lead to yoke socket pin #4, green lead to yoke socket pin #3 and junction of C4 & R55. Drill new mounting hole(s).
② Use original rear cover, centering device and original yoke damping network, if necessary.
③ Mount with leads out top, then connect same as original.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type is Listed

ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
8						8
7						7
2						2
5						5
1						1

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	TRAV-LER PART No.	Halldorson PART No.	Merit PART No.	Ram PART No	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T5	16K	3-4Ω	AT-18	Z1118	A-2934	AU-609	A-3881	26S54	S-51X	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	TRAV-LER PART No.	QUAM PART No.	
SP1	5"	PM	3-4Ω	SPK-36 ①	5A07	① Two used in Models 721-T-661, U. One used in Models 721-LP-701, U
SP2	5"	PM	3-4Ω	SPK-36 ①	5A07	
	3½"	PM	3-4Ω	SPK-28 ②	3A07	② Used in Models 721-LP-701, U
	6"	PM		SPK-62 ②		② Used in Models 721-K-671, U

SELENIUM RECTIFIER

ITEM No	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	TRAV-LER PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	
M1		SR-10	K1616	1T1		

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		TRAV-LER PART No.	CBS PART No.	SYLVANIA PART No.	
M2	1N60	SC-1	1N64	1N295	Video Detector (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	TRAV-LER PART No.	NOTES
M3	Tuner	TA-43	VHF
	Tuner	TA-42	VHF with UHF provisions
	Tuner Cover	FCN-042	UHF, Used with Tuner TA-42

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

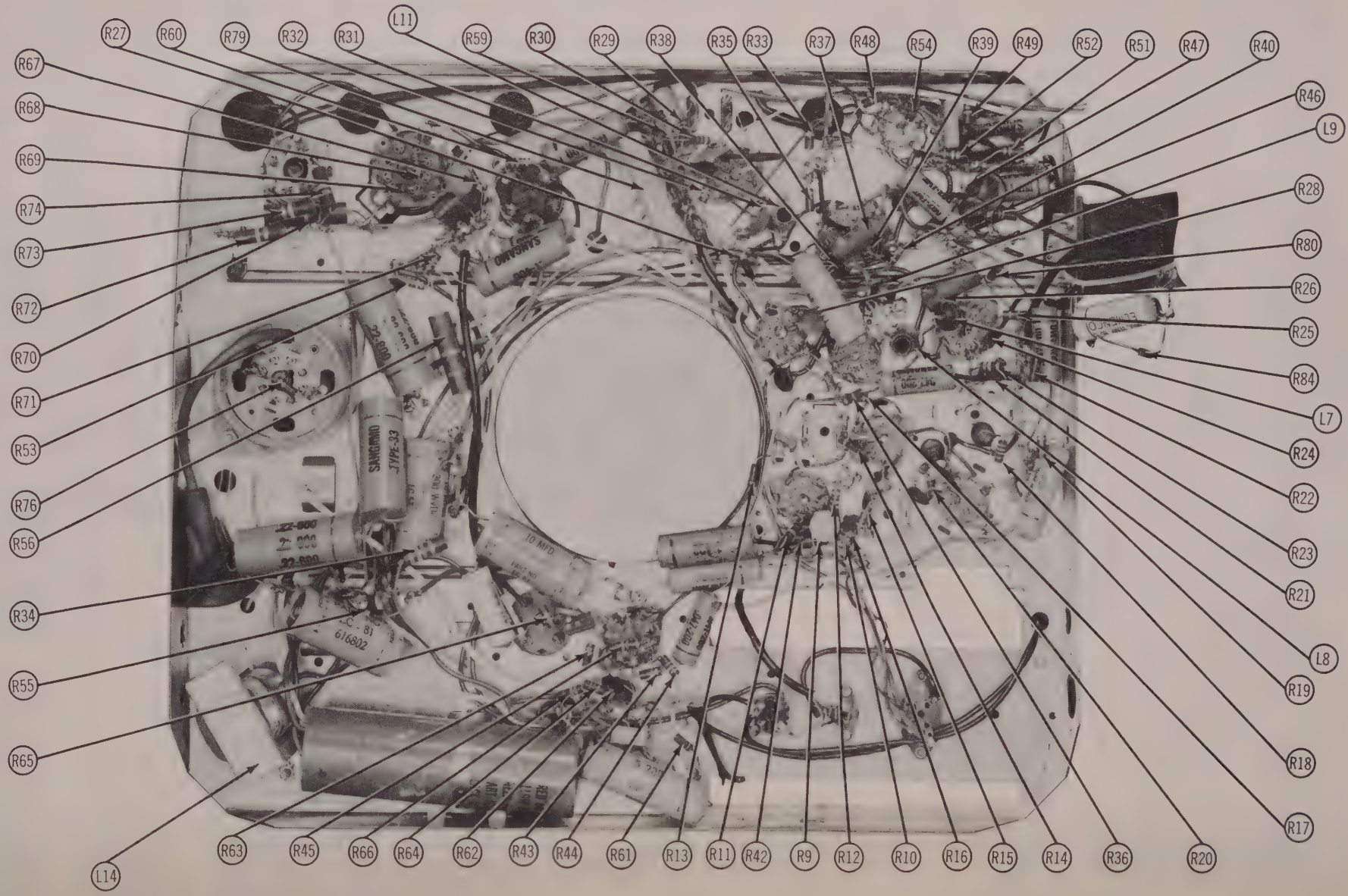
NAME	PART NO	DESCRIPTION
Safety Glass	DW-90T	
Mask	MP-114	
Knob	K-263	VHF Fine Tuning
Knob	K-264	VHF Channel Selector
Knob	K-269	UHF Tuning, Models 721-T-661U, 721-K-671U, 721-LP-701U
Knob	K-270	UHF Channel Indicator, Models 721-T-661U, 721-K-671U, 721-LP-701U
Knob	K-219	5 Used
Leg	CH-69A	Models 721-LP-701, U

WIRING DATA

High Voltage Lead	Use BELDEN No. [illegible]
Shielded Hook-up Wire	Use BELDEN No. 8845 (Single Conductor)
	8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors
	8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. [illegible]
300Ω Tuner Input Lead	Use BELDEN No. 8225
300Ω Antenna Lead-in	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8464 (Flat) or 8484 (Round) - 4 Conductor
	8485 (Round) - 5 Conductor
	8488 (Round) - 8 Conductor

TRAV-LER MODELS 721-K-671, U, 721-LP-701, U, 721-T-661, U (Ch. 743-38)

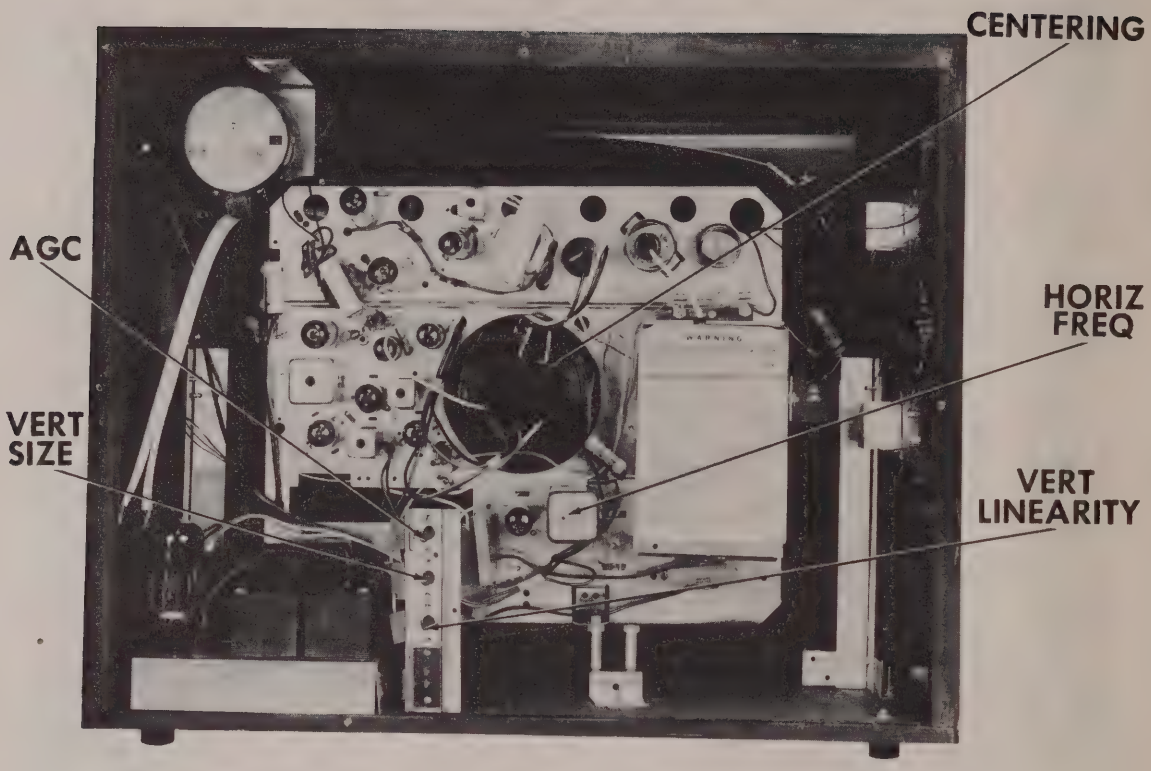
FOLDER 3



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

C206
C201
MIXER PLATE COIL
C213
C202
K201
M203
K202
C209
C219
C208
C207
R203
R204
C212
R202
R201
C204
C203
C205
C218
C220
C217
C210
R207
C211
C215
R208
R205
C214
C216
R206

RF TUNER



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably with a test pattern.

Adjust for normal picture and sound. Set the Horizontal Hold at the center of its range.

Adjust Horizontal Frequency slug (B1) until the picture synchronizes horizontally.

Connect the vertical amplifier of a scope thru a 10mmf capacitor to point ⓒ . Low side to chassis.

Adjust Horizontal Waveshape slug (B2) for waveform similar to Fig. 2 with the broad peaks 5% lower than the narrow peaks. While making this adjustment, keep picture synchronized horizontally with B1.

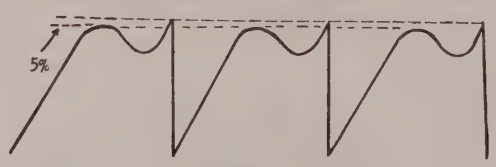


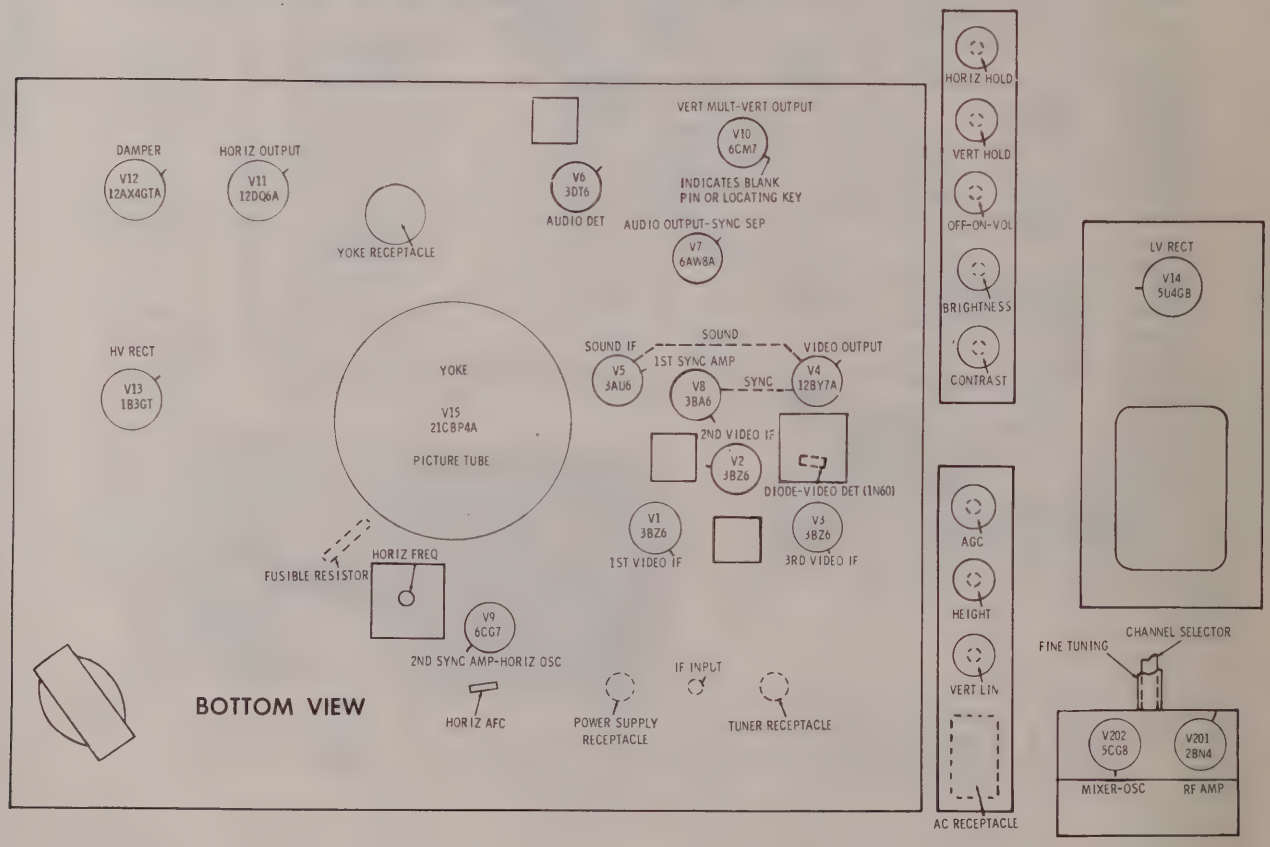
FIG. 2

CHASSIS TOP VIEW

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	3BZ6	580K	150Ω	6Ω	7Ω	†2400Ω	†2400Ω	0Ω		
V2	3BZ6	580K	100Ω	7Ω	8Ω	†2400Ω	†2400Ω	0Ω		
V3	3BZ6	.1Ω	180Ω	9Ω	8Ω	†1500Ω	†34K	0Ω		
V4	12BY7A	•110Ω	700K	0Ω	2.5Ω	2.5Ω	3.2Ω	†6800Ω	†2100Ω	
V5	3AU6	1Ω	0Ω	5.5Ω	4.5Ω	†54Ω	†2100Ω	560Ω		
V6	3DT6	5.9Ω	680Ω	1Ω	0Ω	†270K	†2600Ω	560K		
V7	6AW8A	0Ω	1.5meg	†150K	25Ω	1Ω	220Ω	0Ω	†33K	†570Ω
V8	3BA6	1.3meg	0Ω	6Ω	5.5Ω	†12K	†2100Ω	0Ω		
V9	6CG7	•‡140K	190K	0Ω	3.5Ω	3.2Ω	†11K	22K	0Ω	0Ω
V10	6CM7	4600Ω	NC	•120K	3.6Ω	3.5Ω	•2.8meg	220K	1meg	•1900Ω
V11	12DQ6A	TP	3.6Ω	TP	†8200Ω	110K	NC	3.2Ω	0Ω	TOP CAP ‡16Ω
V12	12AX4GTA	NC	NC	¶200K	NC	†49Ω	NC	3.2Ω	1.7Ω	
V13	1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP ‡231Ω
V14	5U4GB	NC	¶	TP	19.8Ω	TP	15.9Ω	NC	¶	
V15	21CBP4A	1.5Ω	22K	Pin 6 0Ω	Pin 10 ‡56K	Pin 11 •110K	Pin 12 4.5Ω			
V201	2BN4	0Ω	580K	0Ω	.5Ω	†3400Ω	0Ω	580K		
V202	5CG8	10K	†8000Ω	0Ω	1.5Ω	.5Ω	†3400Ω	†12K	0Ω	230K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM 270V SOURCE. NC NO CONNECTION.
‡ MEASURED FROM PIN 3 OF V12. TP TIE POINT.



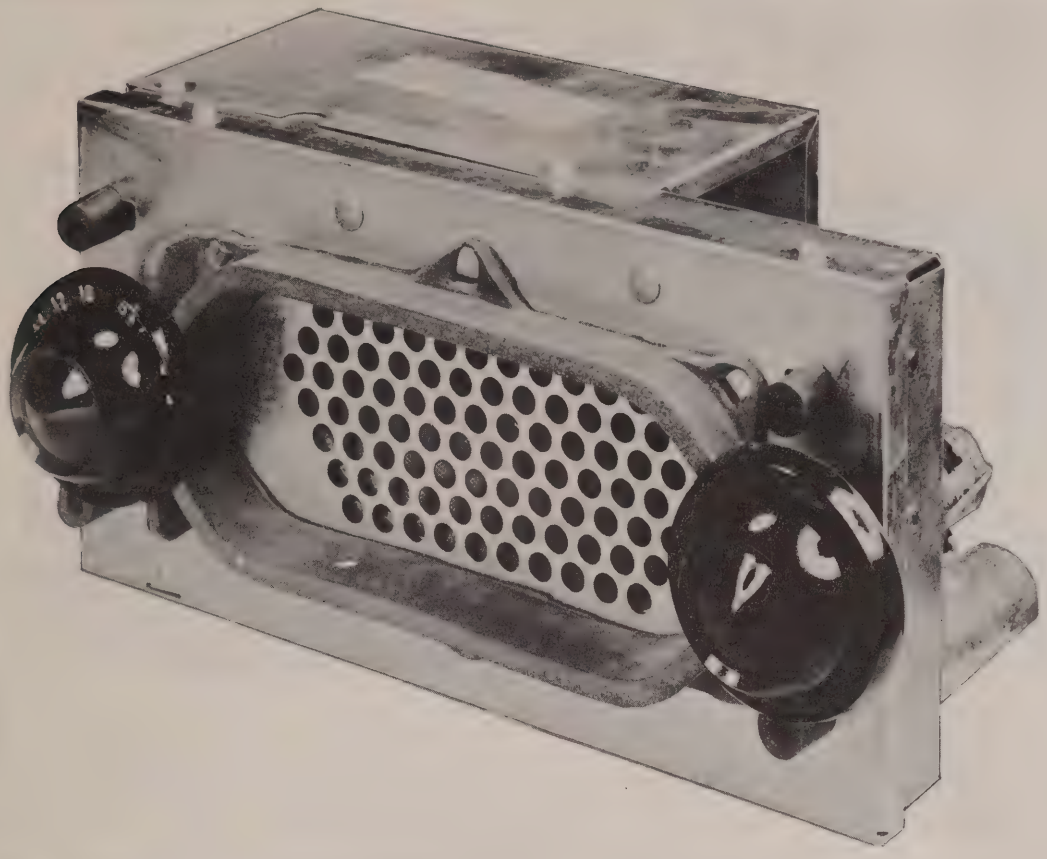
TUBE PLACEMENT CHART

PHOTOFACT* Folder

EIA ELECTRONIC INDUSTRIES ASSOCIATION MEMBER

AMERICAN MOTORS
MODELS 8990543 (83MR)

AMERICAN MOTORS
MODELS 8990543 (83MR)



TRADE NAME	American Motors Model 8990543 (83MR) for 1958 Rambler Automobiles
MANUFACTURER	Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Illinois
TYPE SET	Battery Operated Custom Built AM Automobile Receiver with Transistorized Output.
TUBES (Three)	Types 12AD6 Converter, 12BL6 IF Amplifier, 12DK7 Det.-AVC-AF Amp.
POWER SUPPLY	12 Volt Storage Battery — RATING 1 Amp. @ 12.6 Volts DC
TUNING RANGE—BROADCAST	540-1605KC

AMERICAN MOTORS
MODELS 8990543 (83MR)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1mfd	High side to pin 7 (grid) of 12AD6 (V1). Low side to chassis.	455KC (400~ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2. A3, A4	Adjust for maximum output.
2.	Fig. 1.	Thru dummy to antenna receptacle	1605KC	"	"	A5	"
3.	"	"	1400KC	Tune to 1400KC signal	"	A6	"
4.	"	"	600KC	Tune to 600KC signal.	"	A7	Adjust for maximum output while rocking gang.
5.							Repeat steps 3 & 4. Last adjustment should be A6.
6.	With radio installed in car and antenna fully extended, tune in a weak station near 1400KC and adjust A6 for maximum output.						

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of H558

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PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12AD6	
V2	IF Amplifier	12BL6	
V3	Det.-AVC-AF Amp.	12DK7	

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				NOTES
			CBS PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2N176	Output	CBS-2N155	2N176		2N176	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■500	16	23B539261	AFH2-02-10	B0045	WP200.5			R2452 *
B	▲100	16							

* Non-Catalog Item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	20-180		20K481527						
C3	.1	200	8R121573	P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	
C4	12-40		20K511186						
C5	100		21R410036	N750-DI 100	DTN-100	C10T1U	NT-531	5TCU-T1	N750 10%
C6	3300		21R120422	BPD-0033	DD-332	BYA10D33	UC-5233	5GA-D33	
C7	5000		21R115312	BPD-005	DD-502	BYA10D5	DC525	5HK-D5	
C8	.05	200	8R121005	P288N-05	DF-503	CUB2S5	GEM-415	2TM-S5	
C9	680		21K125371		D6-681	5R5T68		MS-368	10%

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	4meg	½	18B560804	F1-82			■	Tone
B	1meg	½		R2-59				Volume, Tap@ 300K
C	Switch			KB-4				
R2	200Ω	1 (WW)	18K560864				FL-200	Transistor Bias, 75Ω Stop.

■ "STA-LOC" Equivalent: FA46L, OS2125, RU16T35, IS2687

RESISTORS

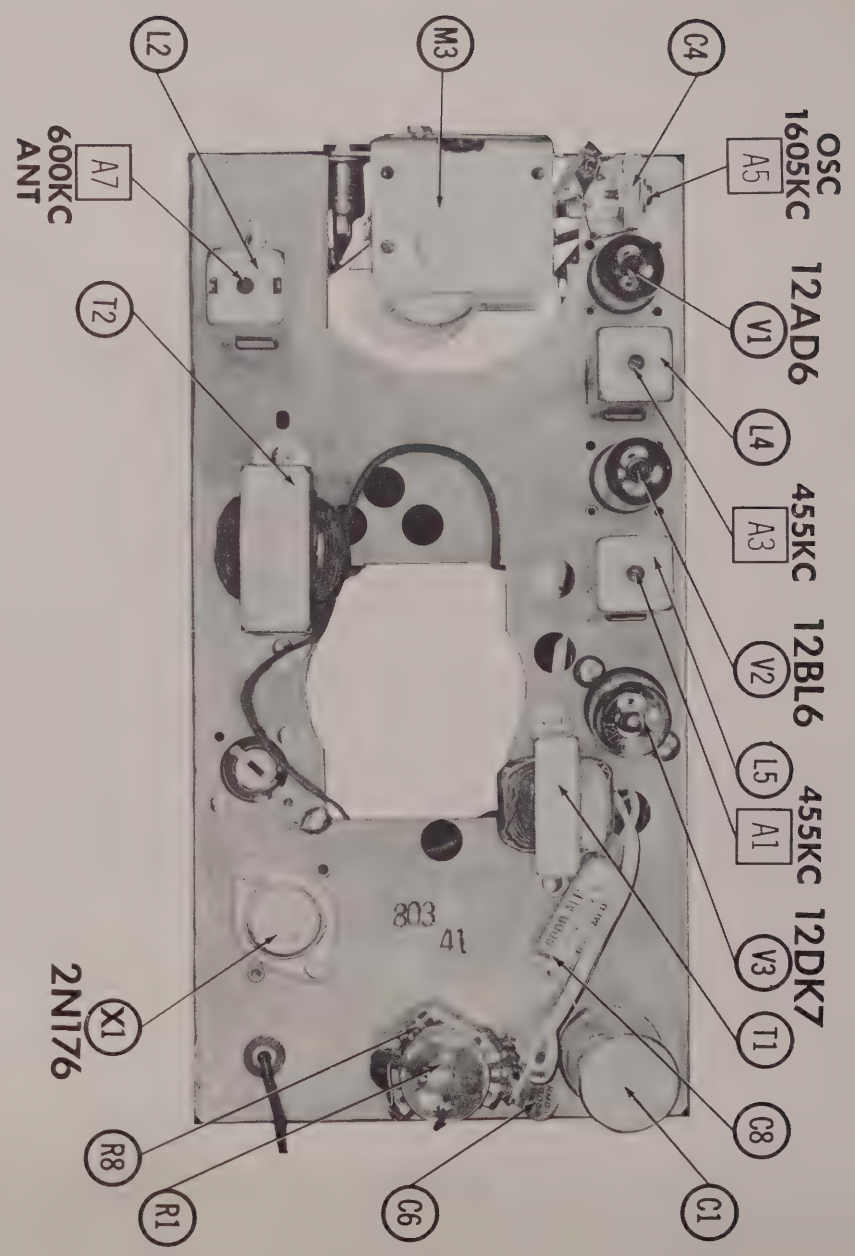
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		MOTOROLA PART No.	NOTES
	OHMS	WATT		
R3	330K		6R2096	
R4	33K		6K121704	
R5	3.9meg		6R490110	
R6	47K		6K121687	
R7	5.6meg		6R3988	
R8	47K		6K121687	

ITEM No.	RATING		MOTOROLA PART No.	NOTES
	OHMS	WATT		
R9	10meg		6K119408	
R10			6A561001	Note 1.
R11	5.6Ω		17K739323	
R12	.68Ω		17K560865	
R13	10Ω Cold		6K540634	
R14	100Ω		6K119402	

Note 1. Value varies depending on applied voltage (Approx. 5000-12000Ω)

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					
		MOTOROLA PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	Ant. Coil	24K592197					2.7 microhenries; IRC Part #CLA
L2	Ant. Coil	24B591628					
L3	Osc. Coil	24A591629					
L4	Input IF	24K560863	16-6758	BC-352	12-C1	RF-1	
L5	Output IF	24K560801	16-6770	BC-355	12-C6		

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA						
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000 ~)	MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L6	1A	.3Ω	.004HY	25C560440						

TRANSFORMER (INTERSTAGE)

ITEM No.	TURNS RATIO		REPLACEMENT DATA							NOTES
	PRI.	SEC.	MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	12	:1	25K560799							

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE	REPLACEMENT DATA							NOTES
	PRI.	MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	39Ω Tap @ 3-4Ω	25K560798							

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	MOTOROLA PART No.	QUAM PART No.	
SP1	4" x 6"	PM	3-4Ω	50K560802	46A15 ①	①Drill New Mounting Holes.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			MOTOROLA PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	1AG	5A 32V	65R122 345	9K560871	301005. (1AG 5A 32V)	155004	AGA5	HAF

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M2	Lamp	65R533821	#1891
M3	Tuning Cap.	19B501790	2 Gang (Ant. 16-495mmf, Osc. 26-144mmf)
M4	Spark Plate	48K539953	Selenium Type (Use #43A539954 Bushing, #5K124848 Eyelet, #4A542137 Washer)
	Spark Plate	48A539147	Selenium Type (Use #43A539259 Bushing, #5K124633 Eyelet, #4A540423 Washer)

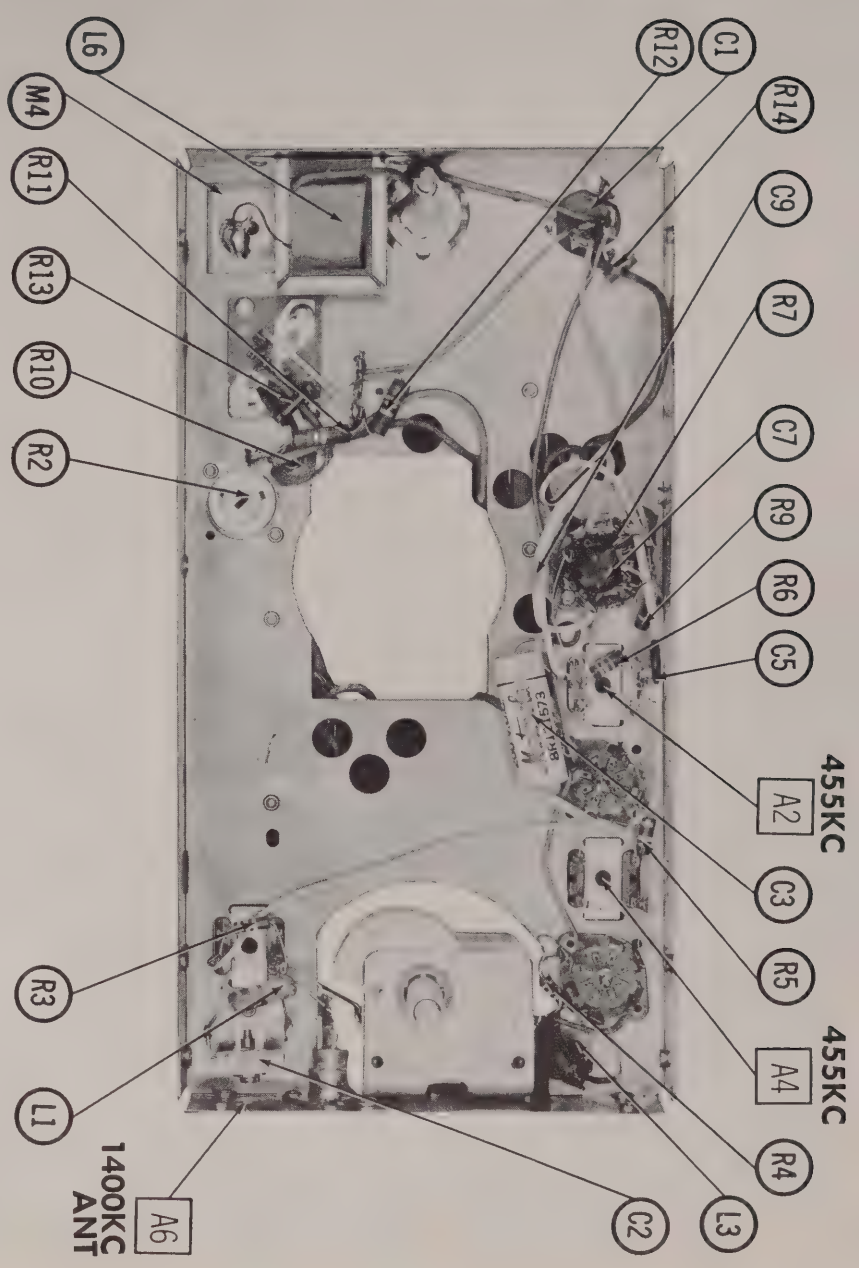
CABINETS & CABINET PARTS

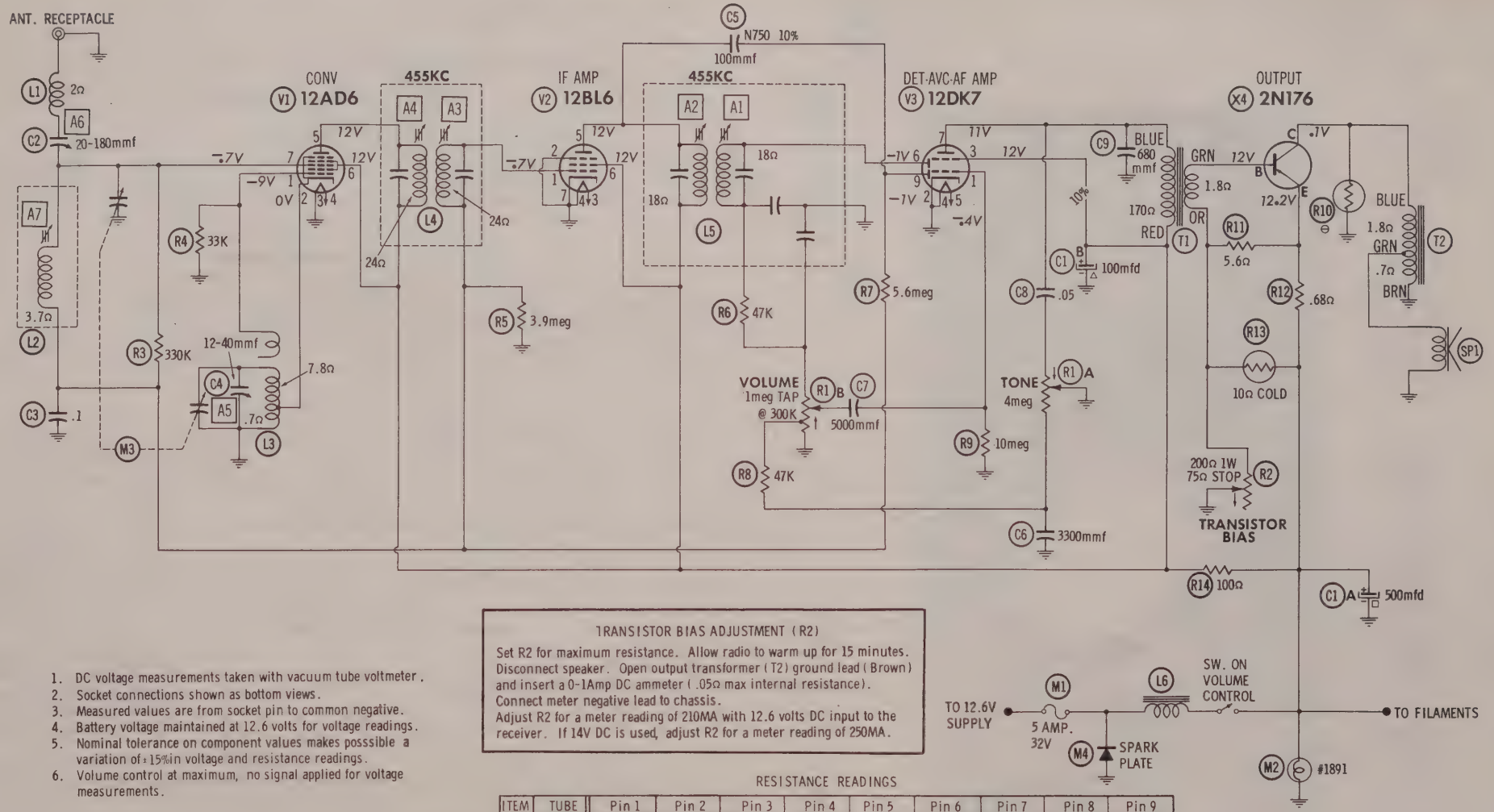
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

WIRING DATA

General-use Shielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Shielded Hook-up Wire ..... Use BELDEN No. 8885
Bonding Strap ..... Use BELDEN No. 8661

CHASSIS—BOTTOM VIEW





TRANSISTOR BIAS ADJUSTMENT (R2)

Set R2 for maximum resistance. Allow radio to warm up for 15 minutes. Disconnect speaker. Open output transformer (T2) ground lead (Brown) and insert a 0-1Amp DC ammeter (.05Ω max internal resistance). Connect meter negative lead to chassis. Adjust R2 for a meter reading of 210MA with 12.6 volts DC input to the receiver. If 14V DC is used, adjust R2 for a meter reading of 250MA.

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 12.6 volts for voltage readings.
5. Nominal tolerance on component values makes posssible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AD6	33K	.7Ω	0Ω	1.6Ω	†124Ω	†100Ω	3.9meg		
V2	12BL6	3.9meg	0Ω	1.6Ω	0Ω	†118Ω	†100Ω	0Ω		
V3	12DK7	10meg	0Ω	†100Ω	0Ω	1.6Ω	780K	†270Ω	NC	9.5meg

TRANSISTOR CIRCUIT RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE

† MEASURED FROM POSITIVE TERMINAL OF C1A

NC NO CONNECTION

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

PHOTOFACT* Folder

MODEL 575 TAPE RECORDER

STEREO SPEAKER ENCLOSURE

COLUMBIA RECORDS
MODELS 570, 575

COLUMBIA RECORDS
MODELS 570, 575

GENERAL INFORMATION

Columbia Models 570 and 575 stereophonic tape recorders feature push buttons to control the electrical and mechanical functions for REWIND, RECORD, STOP, PLAY, and FORWARD operations. Other features are the Automatic Tape Shut-off switch, Tape Index Timer, Safety Record Lock Lever, and the PAUSE and MONITOR controls.

Both models are composed of two units. The main unit contains the tape recording mechanism, both amplifiers, and the internal or "LEFT" speakers, which reproduce sound from the upper channel of the play-record head. The auxiliary unit contains the "RIGHT" speakers, which reproduce sound from the lower channel of the play-record head. The tape transport mechanism of both models is identical. Differences between models are found in the monaural and stereo sections of the amplifier circuitry.

Monaurally, these units record two tracks of material on standard-width recording tape. Thus, the usable length of tape is actually doubled.

SUPPLIED BY

COLUMBIA RECORDS
799 SEVENTH AVE.
NEW YORK 19. N.Y.

This material compiled and published by

HOWARD W. SAMS & CO., INC., INDIANAPOLIS, INDIANA
C362

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SPECIFICATIONS

Power Requirements:
105-115 volts, 60 cycles AC only.

Power Consumption:
Model 570 — 100 watts.
Model 575 — 120 watts.

Power Output
Model 570 — 3 watts each channel; 6 watts monaural (both channels).
Model 575 — 7 1/2 watts each channel; 15 watts monaural (both channels).

Frequency Response:
Model 570 — 80-12,000 cps.
Model 575 — 50-12,000 cps.

Tube Complement:
Model 570 — (2) 12AX7, (1) 12AU7, (1) 6C4, (2) EL84, and (1) 5V4GA.
Model 575 — (2) 12AX7, (2) 12AU7, (2) EL84, and (1) 5V4GA.

Speakers:
Model 570 — (2) 5" x 7", one for each channel. (2) 3 1/2" tweeters, one for each channel.
Model 575 — (2) 8" extended range, one for each channel. (2) 3 1/2" tweeters, one for each channel.

Tape Speeds:
3 3/4 and 7 1/2 ips.

Heads:
Stacked Stereophonic playback head; half-track recording head; separate erase head.

Signal-to-Noise Ratio:
Greater than -45 db.

Wow and Flutter:
Less than .4% rms.

Microphone:
Extended fidelity, 60-10,000 cps ±5 db; shielded 8' cable with shielded plug.

Record Bias and Erase:
75 kc nominal.

Input Jacks:
(1) MICROPHONE.
(1) AUX. INPUT.

Output Jacks:
(1) RIGHT EXTERNAL SPEAKER, 3.2 ohms.
(1) LEFT EXTERNAL SPEAKER, 3.2 ohms.
(1) RIGHT EXTERNAL AMPLIFIER (Model 575 only).
(1) LEFT EXTERNAL AMPLIFIER (Model 575 only).

Reel Size:
Up to 7".

Tracks:
Dual.

Track Selection:
Manual turnover.

Tape Loading
Drop-in-slot.

Playing Time (7" reel):
Approximately 2 hours @ 3 3/4 ips (1 hour each track).
Approximately 1 hour @ 7 1/2 ips (1/2 hour each track).

DISASSEMBLY INSTRUCTIONS

Any servicing will require complete removal of the unit from its carrying case, with the following exceptions:

Cleaning and aligning of head assemblies (37) and (38).

Cleaning, adjustment or replacement of pressure pad assemblies (56).

Pressure roller (53).

Brake shoes.

NORMAL-DISTORT indicator lamps

For location of parts to their respective reference numbers, refer to the Exploded View.

To Clean Brake Shoes

Remove reel screws (1) and (2) from left- and right-hand reel disc assemblies. Pull up reel discs and remove. Brake shoes are now exposed through holes in cover plate assemblies (15) and (15A).

NOTE: Only one cover plate (15) is used in Model 570. Also, the left- and right-hand reel disc screws are threaded differently. The left-hand screw has a left-hand thread; the right-hand screw has a right-hand thread. When the recorder is operating, this assures that the rotation of the reel discs will tighten the screws and thus keep a snug fit.

Cleaning and Inspecting Head Assemblies (37) and (38), Pressure Pad Assemblies (56), Pressure Roller (53) and Indicator Lamps

1. Remove the two Phillips head screws (6) from head escutcheon (5). Remove speed knob (4). Remove head escutcheon.

2. Remove knobs (7A), (7B), (8), and counter dials (10) and (12) from main escutcheon (13). Remove screws (9). Remove main escutcheon.

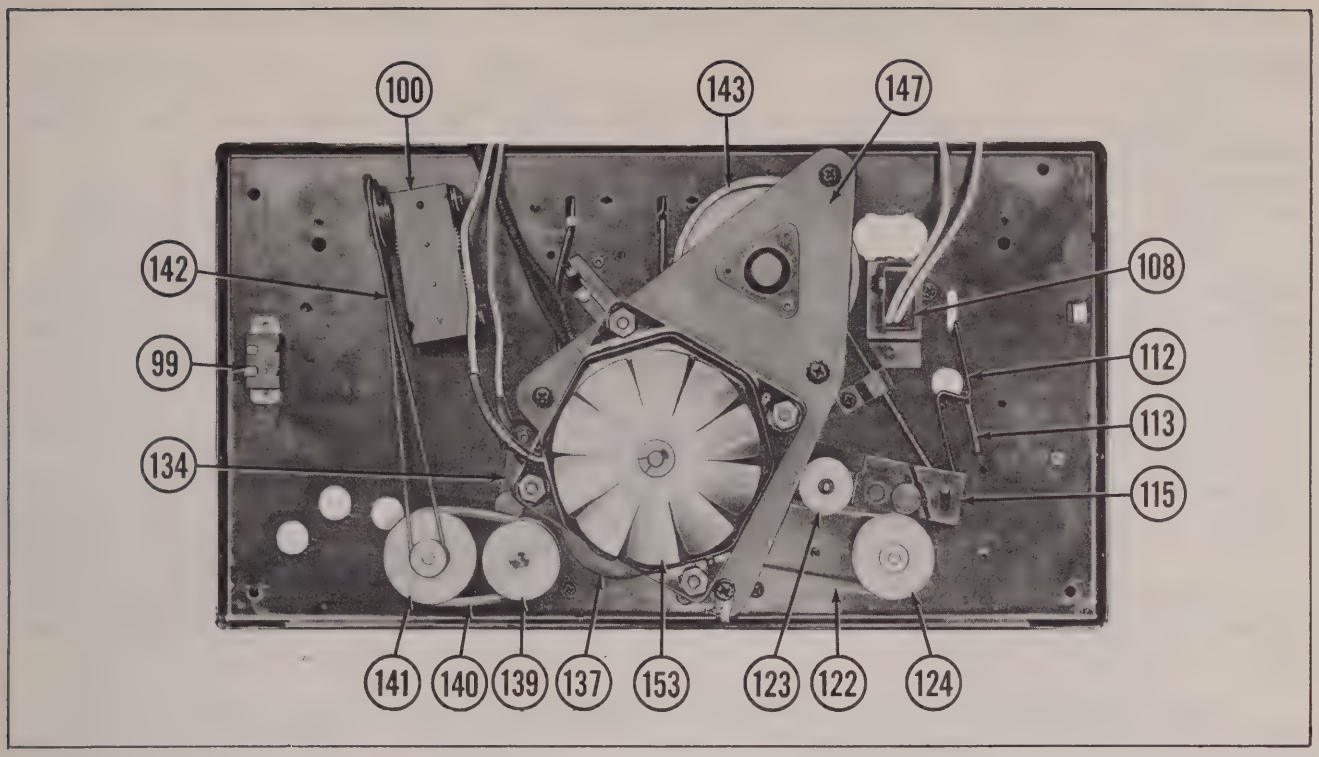


Fig. I BOTTOM VIEW OF TAPE TRANSPORT MECHANISM

NOTE: Knob (8) requires removal in Model 570 only.

Removing Tape Transport Mechanism and Amp Assembly from Carrying Case

1. Remove one Phillips head screw from each side of carrying case.

2. Turn carrying case on its left side and remove four Phillips head screws and their respective baggage studs from bottom of case.

3. With case on end, partially slide out mechanism. Disconnect speaker plug from amplifier chassis. Remove two Phillips head machine screws and hex nuts from recessed AC receptacle at rear of carrying case (Model 575 only). Completely remove unit from case.

SERVICING AMPLIFIER TUBES AND ASSOCIATED CIRCUIT

1. After removing mechanism and amplifier assembly from case, no further disassembly is needed in the Model 575 to service the tubes. The monaural section of the amplifier circuitry is contained on the main chassis directly below the tape deck. The stereo playback amplifier is contained on a separate subchassis directly behind the tape deck and mounted to the main chassis. To expose main chassis circuit wiring for servicing, remove four tri-mount studs from chassis bottom cover plate. To expose stereo amplifier circuitry, remove four hex head screws from perforated masonite board cover.

2. The procedure just described also applies to the Model 570, except:

(V4), part of the stereo playback amplifier, is on the main chassis with the monaural section. (V5) and (V6), the remaining tubes in the stereo playback, are contained on a separate subchassis directly behind the tape deck and are covered by a metal cage. To expose these tubes and circuitry of the subchassis, remove four tri-mount studs from metal cage. Remove cage.

SERVICING TAPE TRANSPORT MECHANISM

1. Remove remaining Phillips head screw (6) from cover plate (15) on Model 570. On Model 575, this screw holds an additional cover plate (15A).

2. Remove four tri-mount studs (14) from sides of cover plate or plates.

3. Remove knobs (7C) and (8) on Model 575.

4. Lift and remove cover plate (15) or plates (15) and (15A).

5. Unplug motor plug and head plugs from amplifier assemblies. Unsolder leads from MONITOR switch.

6. Remove NORMAL and DISTORT indicator lamp holders from tape deck cutout.

7. Remove four Phillips head screws (76) from corners of tape deck. Lift mechanism and remove.

Push Buttons

STOP Button — Depressing STOP button mechanically and electrically stops all functions of the recorder. STOP button should be depressed before each operation and while the recorder is not in use.

RECORD Button — Through mechanical linkages, depressing RECORD button switches the amplifier circuitry and starts recording process. Before RECORD button can be depressed, the mechanism must be in STOP position and the red Safety lever held to the right.

PLAY Button — Through mechanical linkages, depressing PLAY button switches the amplifier circuitry and starts playback operation. Before the PLAY button can be depressed, mechanism must be in STOP position.

REWIND Button — Depressing this button mechanically switches the mechanism for high-speed rewind of tape.

FORWARD Button — Depressing this button mechanically switches the mechanism for high-speed forward travel of the tape. It can also be used to skip portions of tape in order to find a desired selection.

NOTE: Any button previously engaged is automatically returned to its rest or normal position when another button is depressed.

Volume Level Control

This control simultaneously regulates the volume of both upper and lower channels when unit is used as a stereophonic playback instrument. It also sets the volume level for monaural recordings and playbacks when the unit is used conventionally. With the Monaural-Stereo (Mo-St) switch in Monaural (Mo) position, simultaneous regulation of volume for playback operation only is accomplished through both amplifier channels.

Tone Control On - Off Switch

This control regulates high and low frequencies of audio signals, producing a blend of tones suitable to any type of program for both monaural and stereophonic playback operation. Tone control is disconnected when recording. Initial clockwise rotation of this control supplies power to the recorder amplifiers and tape transport mechanism drive motor.

Blancing Controls

These controls balance the right- and left-hand units (speaker enclosures) for the utmost in listening dimension during stereophonic playback operation.

Record Level Indicators

DISTORT Indicator — A continuous glow of the DISTORT lamp indicates overloading of the tape during a recording. The VOLUME control has been properly adjusted when the DISTORT lamp flashes slightly at highest portions of signal level.

NORMAL Indicator — A fairly constant glow of the NORMAL lamp indicates correct volume during a recording. Adjust VOLUME control until NORMAL lamp flashes regularly.

Tape Index Timer

The TIMER is useful for quickly locating a prerecorded selection on tape. Set both the large and small dials of the timer to zero after threading a reel of tape. After each selection is recorded, make a note of the TIMER readings for future reference.

Speed Selector Knob

Turning this knob selects either 3 3/4- or 7 1/2-ips tape speeds. The faster speed (7 1/2 ips) permits greater fidelity, while the slower speed (3 3/4 ips) provides longer playing time. Most prerecorded tapes are made at 7 1/2 ips, as are all stereophonic prerecorded tapes. However, the 3 3/4-ips speed is clear enough for voice recording.

Safety Lever

The safety lever locks the RECORD button to prevent accidental tape erasure. Push "S" lever to the right and hold while RECORD button is pressed. Mechanism must be in STOP position also prior to RECORD operation.

Pause Button

Forward motion of tape travel may be stopped in the RECORD or PLAY operations by pushing the PAUSE button toward rear of unit. The PAUSE button allows recording volume to be preadjusted before tape is set in motion. It also permits noiseless momentary stops, eliminating commercials when recording from a radio or TV set or lulls in conversation, etc., during other recordings.

Monitor Switch

The ON position of the MONITOR switch permits listening to a recording while it is being made. The ON position should also be maintained when using the recorder as a public address system or phonograph amplifier.

Automatic Shut-Off Switch

The mechanism drive motor is automatically shut off unless tape is threaded in front of plastic shut-off lever (see Fig. 4). Should tape break or supply reel become empty, the mechanism shuts off automatically and remains off until the machine is rethreaded. The amplifier power remains on.

Input Receptacles

MICROPHONE input — This input may be used with the microphone supplied with the recorder or another microphone with the proper impedance match. The input circuit impedance is high, and a matching transformer must be used with a low-impedance microphone.

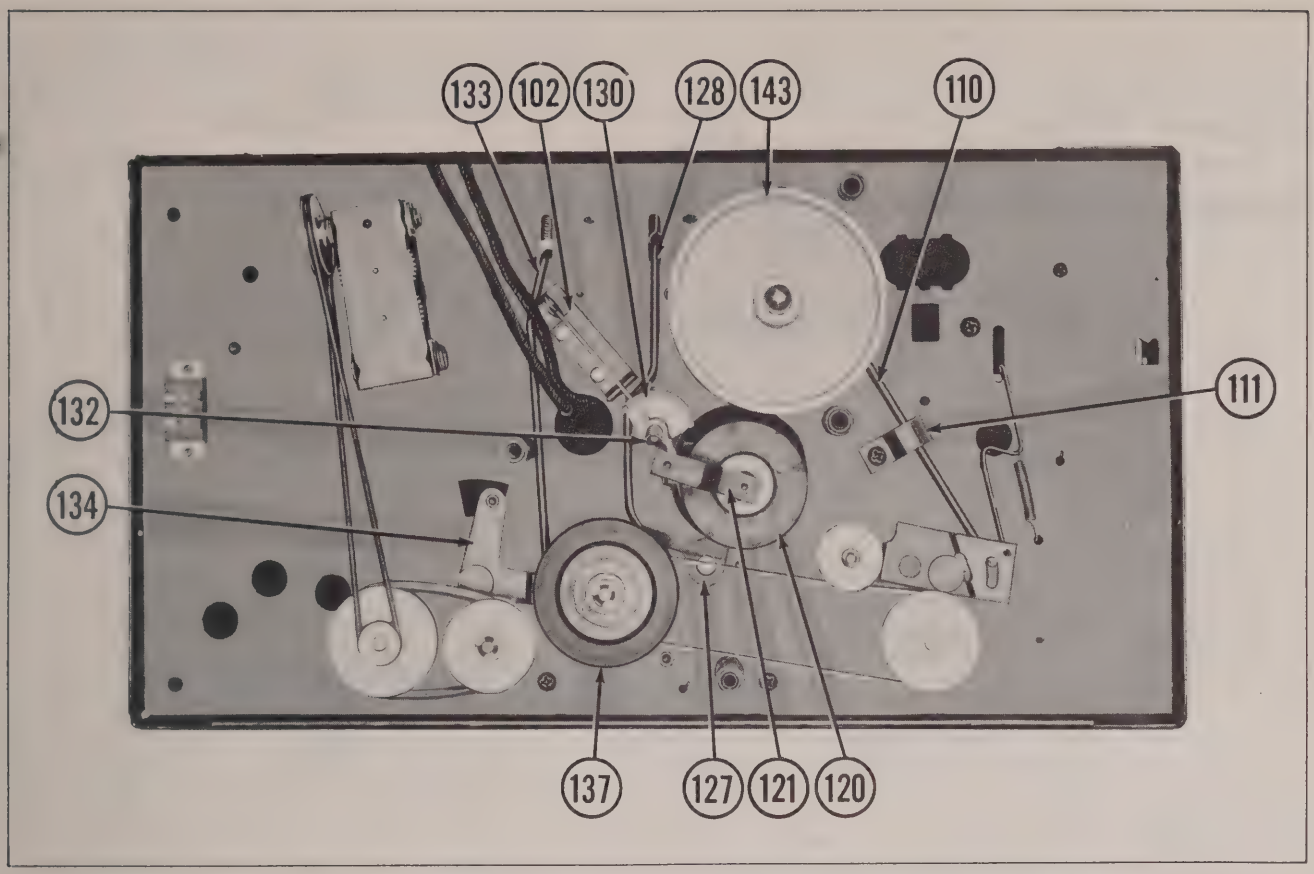


Fig. 2 BOTTOM VIEW OF TAPE TRANSPORT MECHANISM WITH MOTOR REMOVED

AUX. INPUT — This input may receive signals for recording from a radio, FM-AM tuner, TV, or directly from the cartridge (crystal or ceramic type) of a phonograph.

The input voltage required is approximately one volt. This voltage can be obtained by connecting directly across the speaker voice coil terminals of a radio or TV set or from an outlet provided in most tuners.

OUTPUT RECEPTACLES

RIGHT EXTERNAL SPEAKER -- When playing stereophonic tapes, the auxiliary unit containing the two right speakers should be plugged into this receptacle. However, the same procedure may be followed if a remote right speaker system is desired during monaural playbacks. The left speakers are contained within the main unit.

LEFT EXTERNAL SPEAKER — During stereophonic or monaural playback, two separate speaker systems may be used, providing they are the same impedance. One speaker system should be plugged into the LEFT EXTERNAL SPEAKER receptacle and the other speaker system into the RIGHT EXTERNAL SPEAKER receptacle. Plugging into the LEFT EXTERNAL SPEAKER receptacle automatically disconnects the speakers in the main unit.

RIGHT EXTERNAL AMPLIFIER (Model 575 only) — This receptacle serves as an output to an external amplifier for both stereo and monaural playback operations. The external amplifier output may feed other speaker systems, in which case a multiple speaker system may be set up. The output stage of the right channel main amplifier continues to function into its respective speaker system.

LEFT EXTERNAL AMPLIFIER (Model 575 only) — This receptacle provides an output to an external amplifier for monaural playbacks only or for amplifying the upper channel (left) during stereophonic playback reproduction. The external amplifier output may feed other speaker systems, in which case a multiple speaker system may be set up. The output stage of the left channel main amplifier continues to function into its respective speaker system. The signal fed to the external amplifier from either the LEFT or RIGHT EXTERNAL AMPLIFIER receptacle is controlled by the recorder's volume control; however, the recorder's tone control has no effect. Therefore, some means of tone compensation should be on the external amplifier. The output at both the LEFT and RIGHT EXTERNAL AMPLIFIER receptacles is approximately one volt at 300 ohms impedance. This low impedance allows a cable up to 75 feet to be used. A regular shielded-type phone plug with shielded cable should be used.

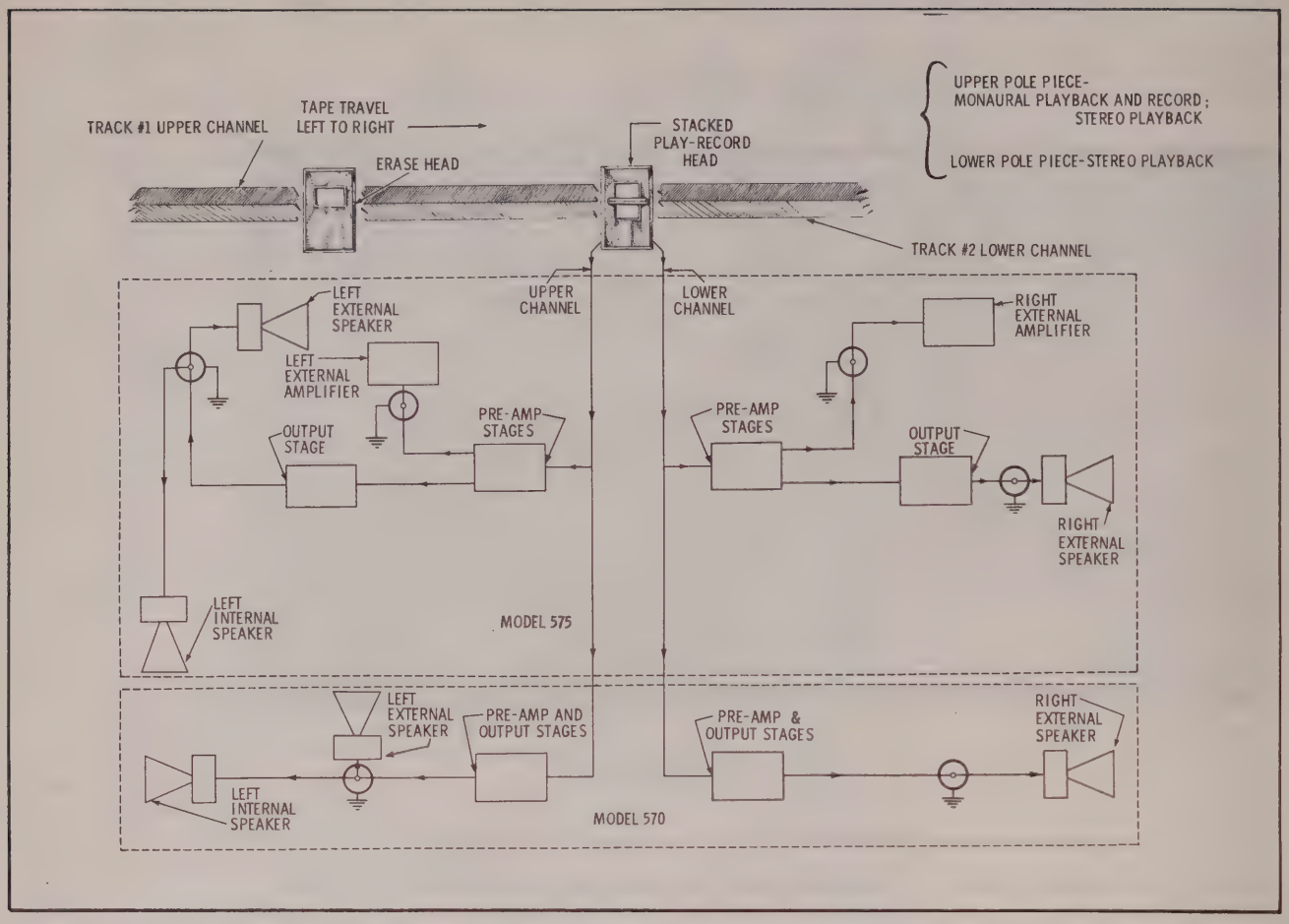


Fig. 3 STEREOPHONIC SOUND BLOCK DIAGRAM

STEREOPHONIC SOUND

Stereophonic tapes have two separate sound tracks recorded simultaneously with two microphones. The sounds picked up by the left microphone are recorded on one-half of the tape, and the sounds picked up by the right microphone are recorded on the second half of the tape. Thus, the microphones pick up the sound in the same manner as a pair of ears if they were in the same position. When a stereophonic tape is played, the listener hears, through the left speaker system, what the left microphone has picked up. Through the right speaker system, the listener hears what the right microphone has picked up. Thus, the listener receives a distinct impression of a third sound dimension.

OPERATING INSTRUCTIONS

Threading The Tape

With STOP button depressed, place empty reel on right-hand (take-up) spindle. Place a full reel of tape on left-hand (supply) spindle with tape unwinding counterclockwise. Thread tape (glossy side out), following threading line embossed in plastic escutcheon. Thread straight through the slot in covers and in front of plastic Automatic Shut-off lever (see Fig. 4). Place tape around chrome-plated tape guide to outside of take-up spindle. Insert free end of tape into one of hub slots on take-up spindle and wind about two or three turns of tape around hub to take up slack between reels.

To Record Monaurally

1. Insert line cord into a 105-115-volt, 60-cycle AC outlet and connect a microphone or signal from another input source.

2. Switch on the recorder by turning the BASS-TREBLE control clockwise.

3. Push PAUSE button toward rear of unit and lock to right.

4. Hold red "Safety" lever (marked S) to the right and depress RECORD button.

5. Turn MONAURAL-STEREO switch to MONAURAL position.

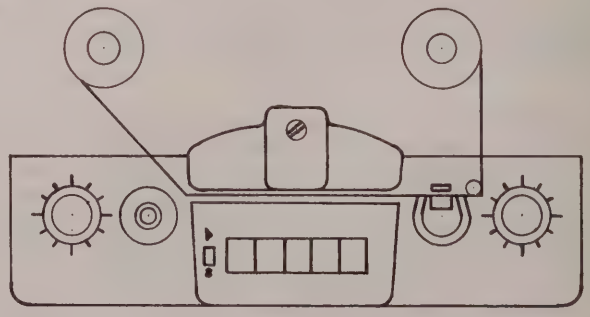


Fig. 4

6. Speak into microphone or test the sound you wish to record, adjusting volume control until DISTORT light flickers slightly and NORMAL light flashes regularly.

7. Set Tape Index TIMER dials to zero and make a note of the reading at beginning and end of recording.

8. Push PAUSE button to left to begin recording.

NOTE: These recorders have automatic built-in erase that operates in RECORD position only, assuring a clean tape for new recordings.

9. Depress STOP button after recording is finished. To rewind tape, depress REWIND button. Mechanism shuts off automatically when rewinding is completed.

To Play Back Monaural Recording

1. Thread tape as outlined under "Threading the Tape".

2. Turn on recorder and depress PLAY button. Adjust VOLUME and Tone controls for desired listening pleasure.

3. MONAURAL-STEREO switch may be turned to either position.

4. Depress STOP button when finished.

NOTE: Mechanism shuts off automatically after tape reel plays through entirely.

To Play Stereophonic Tapes

1. Thread tape as outlined under "Threading the Tape".

2. Turn MONAURAL-STEREO switch to STEREO position.

3. Press PLAY button.

4. Adjust Tone and VOLUME controls for desired listening pleasure.

Dual Track Monaural Recordings

These recorders record on both halves of the tape, thus doubling the recording time. Dual-track recordings are made as follows:

1. After a reel of tape has been recorded, a second track may be recorded on the same reel (without rewinding) by removing the full reel from the right-hand spindle, turning it over, and then placing it on the left-hand spindle. Place empty reel on right-hand spindle.

2. Properly thread the tape and proceed with the recording as described under "To Record Monaurally".

3. After the second track has been recorded, the first track is ready to be played, without rewinding, by changing the reels as described in Step 1 of the foregoing.

ADJUSTMENTS

Head Bar Bracket Adjustment

Adjust head bar bracket (33) until head bar (36) moves freely without binding. If bracket is too loose, pressure roller (53) will not press against capstan evenly, causing tape flutter or climb.

Pressure Roller Alignment

The pressure roller stud must be parallel with the capstan, or tape will creep up or down on the capstan. As a check, remove "E" ring (51) and slightly raise pressure roller (53). Depress PLAY button. If pressure roller moves up or down, straighten stud or slip a close-fitting sleeve over the stud.

Pressure Roller Pressure Adjustment

The pressure roller pressure against the capstan should measure from 2 1/2 to 3 1/2 lbs. with recorder in either RECORD or PLAY position. To adjust pressure, bend button levers (88) where actuating springs (71) and (73) are hooked. To decrease pressure, bend in tab; to increase pressure, bend out tab.

Stop Adjustment

Bend STOP button lever (88), where brake actuating hook (72) connects, until brakes release reel discs when another button is depressed. When STOP button is depressed, bell crank (127) must disengage capstan idler (120) from motor shaft, and flywheel and capstan assembly (143).

Play And Record Torque Adjustment

The take-up torque in PLAY and RECORD position should measure 1 1/2 to 3 oz., measured 2 3/4 inches from center of take-up reel. With a pair of long-nosed pliers, bend take-up bar actuator (112) at point "A" on Exploded View, Page 13 , shortening or lengthening to increase or decrease torque.

Fast Forward Torque Adjustment

The fast forward torque should measure 5 to 7 oz. measured 2 3/4 inches from center of take-up reel. To adjust, insert a 3/8-inch nut driver through hole in baseplate (see Fig. 7A). Turn eccentric-mounted tension pulley (123) counterclockwise to increase torque or clockwise to decrease torque, making sure not to exceed maximum travel of eccentric.

Rewind Torque Adjustment

Rewind torque should measure 2 1/2 to 4 1/2 oz. measured 2 3/4 inches from center of rewind reel. If torque is low, make sure rewind driver (139) does not slip on take-up driver (137). Clean drivers and rewind belt (140) of any oil or grease with a cloth slightly dampened with alcohol.

Pause Brake Adjustment

With tape threaded and PLAY button depressed, bend tab (point "B" on Exploded View, Page 12) until right-hand reel stops. Tape drive should release simultaneously.

Play - Record Head Alignment

Stacked play-record head (38) must be lined up perfectly with tape. If not, low output, loss of high frequencies, or track overlap may result during monaural playback-record or stereo playback. Adjust stacked play-record head (38) as follows:

1. Head Height — Proper head height is achieved when tape width is centered in tape slot on head. To adjust, thread tape on recorder and loosen two hex nuts (42) on side of play-record head. After proper height adjustment, tighten two hex nuts (42).

2. Azimuth Alignment — To adjust, obtain a standard alignment tape having a recorded signal of 5,000 cycles per second. Connect an output meter or a sensitive AC voltmeter across speaker voice coil terminals. Play back the 5,000-cycle note and pivot stacked play-record head (38) by turning hex nut (45). Proper head alignment is achieved at maximum meter amplitude. Proper head alignment on monaural playback will also give optimum performance on stereo.

Erase Head Adjustment

Erase head (37) should be adjusted until pole pieces are approximately .005" above top edge of tape. Although not too critical, erase head should be as perpendicular to tape as possible.

Hum Balance Adjustments

To assure maximum signal-to-noise ratio, hum controls (R 4) in Model 570 and (R 4 and R5) in Model 575 are provided. To minimize hum:

1. Reverse power plug for minimum hum.

2. With recorder in PLAY position, rotate VOLUME and Tone controls to maximum clockwise position. Adjust hum balance controls (R 4) in Model 570 and (R 4 and R 5) in Model 575 for minimum hum at speakers.

The hum balance control, R 4 in Models 570 and 575, adjustment is accessible through a hole in right rear corner at top of amplifier chassis, or from underside of chassis after removing amplifier chassis bottom cover plate.

The adjustment for hum balance control R5 used for lower channel in Model 575 is accessible through a hole at rear center of stereo-playback amplifier chassis (tube side).

Balancing Adjustments

This control may be adjusted when proper balance is desired between right- and left-hand units during stereophonic playback. It affects the lower channel signal only. Proper balance will be affected by the distance between right- and left-hand units, and the physical properties of the room (size, furniture, draperies, etc.). To adjust, a stereophonic balancing tape should be placed on the tape deck and the machine made ready to play.

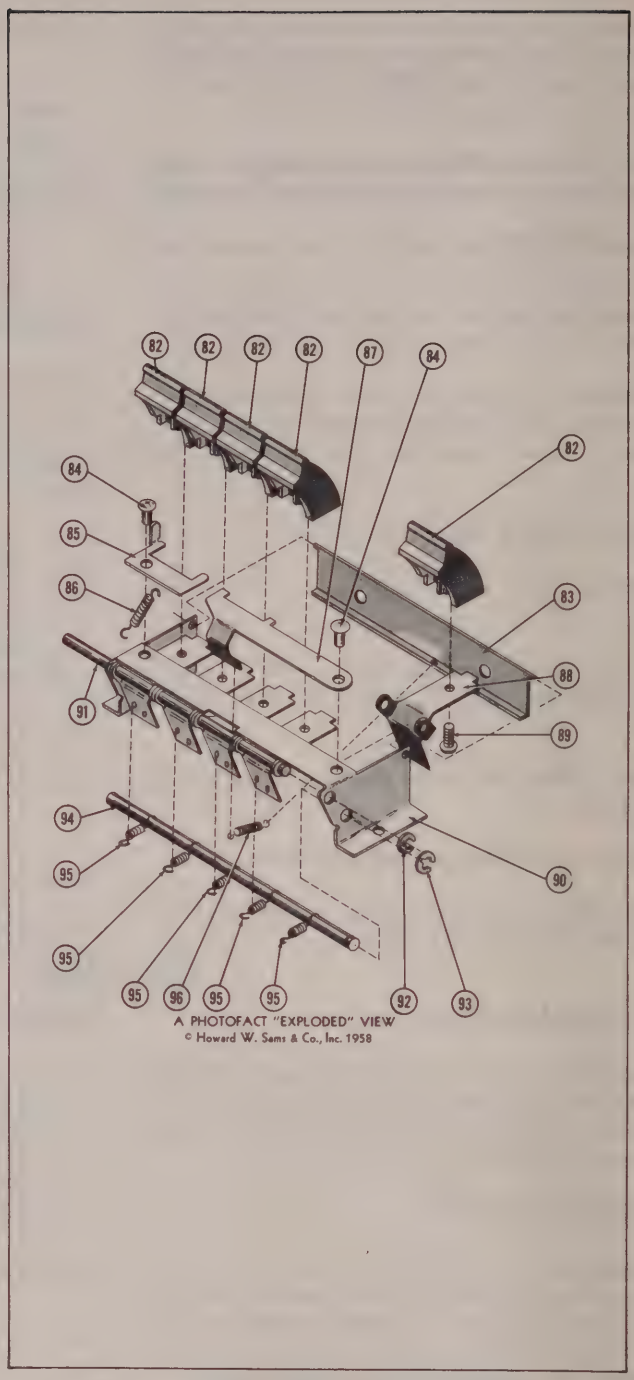


Fig. 5 CONTROL BUTTON ASSEMBLY

On the Model 570, the balancing control is located at the rear and bottom of the side of the carrying case. Remove brass-colored disc with a fingernail or small screwdriver for access to control. Play tape and stand about six to ten feet from two units and centered between them. Proper adjustment (with a screwdriver) has been made when sound seems to come from a point midway between the two units, rather than from either one.

On the Model 575, the balancing control adjustment is made by rotating inner knob (7C) at rear center of tape deck. Adjustment is the same as described for the Model 570 in the preceding paragraph.

For satisfactory operation of mechanical parts, lubricate with SAE #5 motor oil any parts that are replaced, or the following when necessary:

1. Both capstan bearings. To oil capstan bearings, place one small drop of oil on each bearing. CAUTION: Be sure no oil is on the portion of capstan extending above baseplate.

2. Tension pulley (123) bearings.

3. Reel bearings (101).

4. Rewind driver (139) bearing.

5. Capstan idler (120) bearing.

6. Take-up driver (137) bearing.

7. Pressure roller (53) bearing.

NOTE: When oiling any bearing on which a rubber part or a belt is mounted, apply only one small drop of oil.

NOTE: Oil and grease must be kept off all rubber idlers, belts, and periphery of flywheel or any parts that might transfer oil or grease to them.

Apply Trojan "H2" Grease or equivalent to the following:

1. Between brake arm (18) and brake shoes.

2. Between brake shoes and baseplate.

3. Between rewind arm (134) and baseplate.

4. Under head bar (36) pivot bosses.

5. To top of head bar (36) above R. H. bosses.

6. Between take-up bar (115) and baseplate.

7. Between pause lever (30) and baseplate.

8. Between bell crank (127) and baseplate.

9. To latch bar (83) on cam side where button levers (88) make contact.

10. To latch bar (83) and button housing (90) pivot holes.

11. To brake rod (128) ends at baseplate holes.

12. To rewind rod (133) at baseplate hole.

13. To fast forward rod (110) at take-up bar (115) slot.

14. To holes in baseplate where amplifier switch extensions slide.

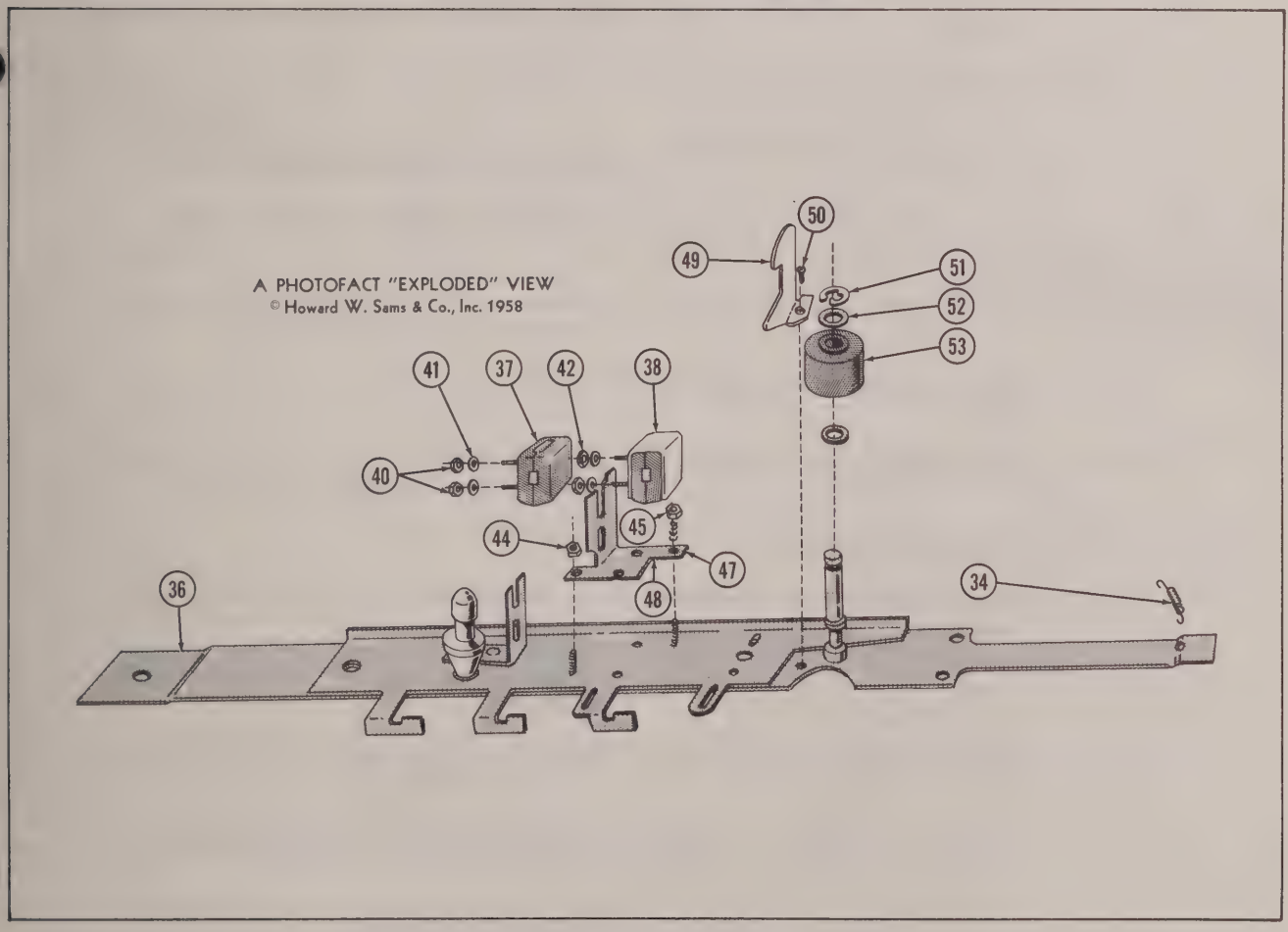


Fig. 6 HEAD BAR ASSEMBLY

TROUBLE CHART

SYMPTOM	CAUSE	REMEDY
Take-up reel does not revolve in PLAY or RECORD position.	1. PAUSE brake on or sticking.	1. Release PAUSE brake; check that PAUSE lever (30) is free and releases completely.
	2. Brakes (18) not releasing properly.	2. Check that brakes (18) are releasing completely; if not, adjust button lever (88) on STOP button.
	3. Take-up belt (122) worn.	3. Replace worn or stretched belt.
	4. Take-up belt (122) off pulleys.	4. Pulleys must be aligned correctly or belt will continue to slip off.
	5. Capstan idler (120) not engaging flywheel.	5. Check that speed change knob (4) is in detent completely; also check that bell crank (127) is releasing capstan idler (120).
	6. Speed change not completely in detent.	6. Turn knob (4) to proper speed.
	7. Tension pulley (123) not engaging take-up belt.	7. Check that take-up arm (115) is not binding on baseplate or take-up rod (110).
	8. Pressure roller (53) applying too much pressure against capstan, stalling motor.	8. Adjust button lever (88) on PLAY and RECORD buttons until the pressure roller applies from 2 1/2 to 3 1/2 lbs. pressure on the capstan. (See "Mechanical Adjustments".)
	9. Tension pulley (123) not adjusted properly.	9. Tension pulley must be adjusted properly. (See "Mechanical Adjustments".)
	10. Head bar actuating springs (71) or (73) off or broken.	10. Replace.
	11. Take-up bar actuator not adjusted properly.	11. Take-up bar actuator must be adjusted properly. (See "Mechanical Adjustments".)
	12. Take-up driver (137) not engaging motor shaft.	12. Take-up arm (20) must operate freely.
Take-up reel does not revolve in FORWARD position.	1. Button lever (88) not adjusted properly.	1. Button lever can be adjusted to make small deviations in torque (see No. 5).
	2. Actuating spring (21) loose or broken.	2. Replace.
	3. Take-up belt (122) off pulleys.	3. Replace (see "Take-up reel does not revolve in PLAY or RECORD position").
	4. Take-up belt (122) worn.	4. Replace.
	5. Tension pulley (123) not adjusted properly.	5. In forward position, tension pulley should be adjusted until there is 5 to 7 ozs. of torque approximately 2 3/4 in. from the center of the reel. (See "Mechanical Adjustments".)
	6. Brake sticking on supply reel disc.	6. Check that brake return springs (17) are releasing brakes.
	7. Too much friction in counter (100).	7. Counter should turn freely without binding.
	8. Motor stalling.	8. Check that tension pulley (123) is adjusted properly. (See No. 5.)

SYMPTOM	CAUSE	REMEDY
	9. Tension pulley (123) not engaging take-up belt.	9. Check that take-up bar (115) is not binding on baseplate or take-up rod (110).
Reels do not stop when STOP button is depressed.	1. Button lever (88) not adjusted properly.	1. Button lever must be adjusted to release the brakes completely when another button is pushed.
	2. Brake actuating hook (72) or spring (21) loose or broken.	2. Replace.
	3. Brake assembly binding.	3. Check to see if brake assembly operates freely.
	4. Tension pulley not adjusted properly.	4. See "Take-up reel does not revolve in FORWARD position".
	5. Brakes worn.	5. Replace brake arm assembly (18).
	6. Take-up bar (115) sticking.	6. Take-up arm must operate freely.
Weak output.	1. Playback head (38) not aligned properly.	1. Head should be aligned for maximum output. (See "Mechanical Adjustments".)
	2. Pressure pad (57) not making proper contact with head.	2. Pressure pad (57) should make complete contact with head pole piece.
	3. Light pressure pad pressure.	3. Pressure pad must have from 12 to 18 grams pressure on head.
	4. Defective record head (38).	4. Replace.
Take-up reel revolves rapidly when PLAY or RECORD buttons are depressed.	1. Tab on PAUSE lever (30) not adjusted properly.	1. Adjust PAUSE brake lever until pressure roller (53) disengages capstan, and take-up reel stops simultaneously.
	2. Head bar bracket (33) too tight.	2. See "Mechanical Adjustments".
	3. Button levers not adjusted properly.	3. Button levers (88) must be adjusted until pressure roller (53) applies from 2 1/2 to 3 1/2 lbs. pressure on capstan in PLAY or RECORD position. (See "Mechanical Adjustments".)
	4. Pressure roller (53) not aligned properly.	4. See "Mechanical Adjustments".
	5. Take-up driver (137) not engaging motor drive shaft.	5. See "Take-up reel does not revolve in PLAY or RECORD position.
	6. Brake sticking on take-up pulley.	6. Check that brake arm assembly (18) is free and not binding, also check that brake return springs (17) are releasing brakes.
	7. PAUSE brake on.	7. Release.
	8. Oil on rewind belt (140).	8. Remove all oil from belt (140) and pulleys (139) and (141).
Mechanism does not shut off at end of tape.	1. Defective switch.	1. Replace or repair.
Wow or flutter (RECORD or PLAYBACK).	1. Bump on take-up belt (122).	1. Replace.
	2. Safety switch (108) applying too much pressure on tape.	2. Replace.

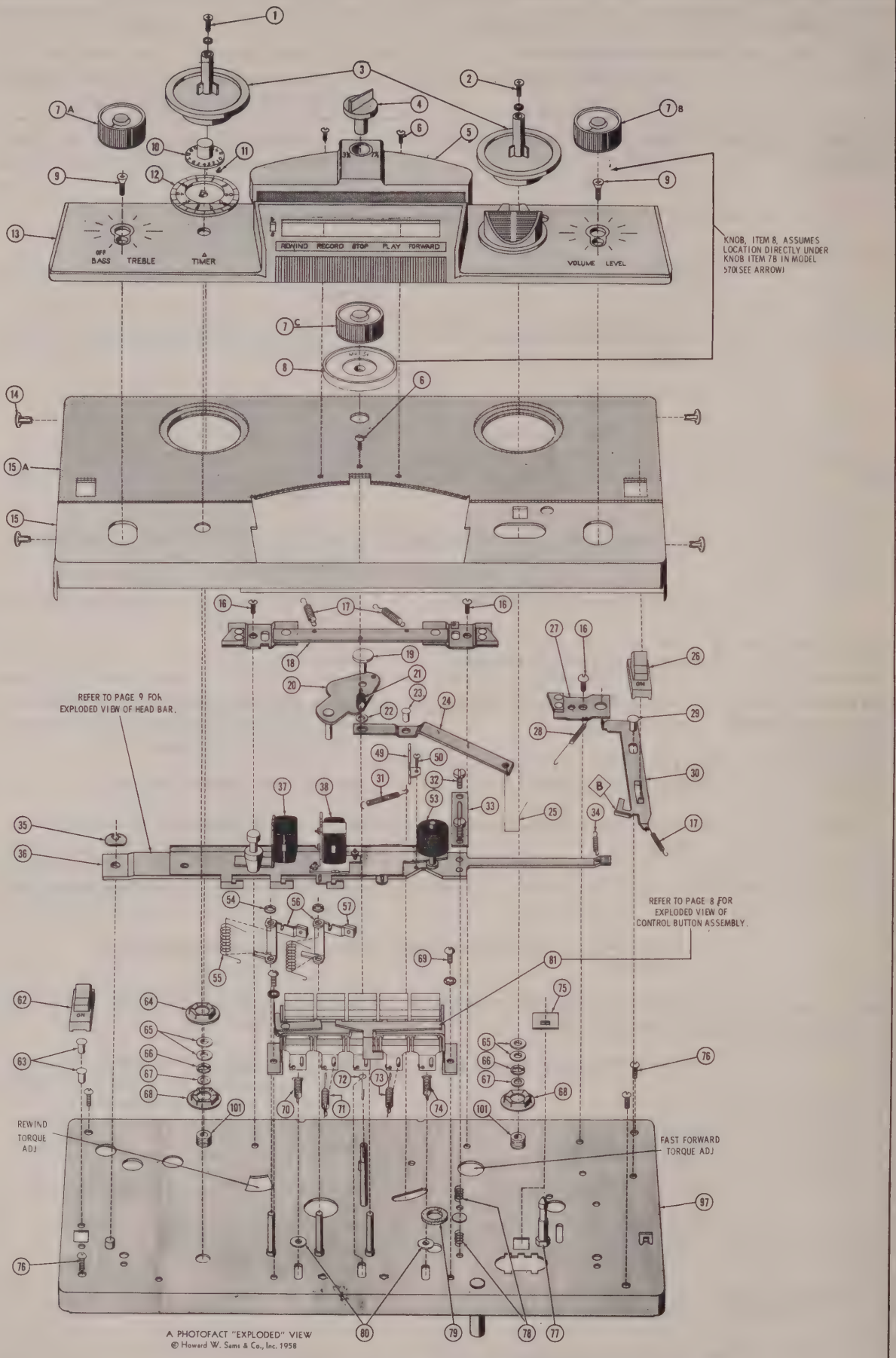

REWIND RECORD STOP PLAY FORWARD
OFF BASS TREBLE TIMER
VOLUME LEVEL
KNOB, ITEM 8, ASSUMES LOCATION DIRECTLY UNDER KNOB ITEM 7B IN MODEL 570(SEE ARROW)
REFER TO PAGE 9 FOR EXPLODED VIEW OF HEAD BAR.
REFER TO PAGE 8 FOR EXPLODED VIEW OF CONTROL BUTTON ASSEMBLY.
REWIND TORQUE ADJ
FAST FORWARD TORQUE ADJ
A PHOTOFACT "EXPLODED" VIEW
© Howard W. Sams & Co., Inc. 1958

FIG. 7A EXPLODED VIEW OF PARTS ABOVE BASEPLATE

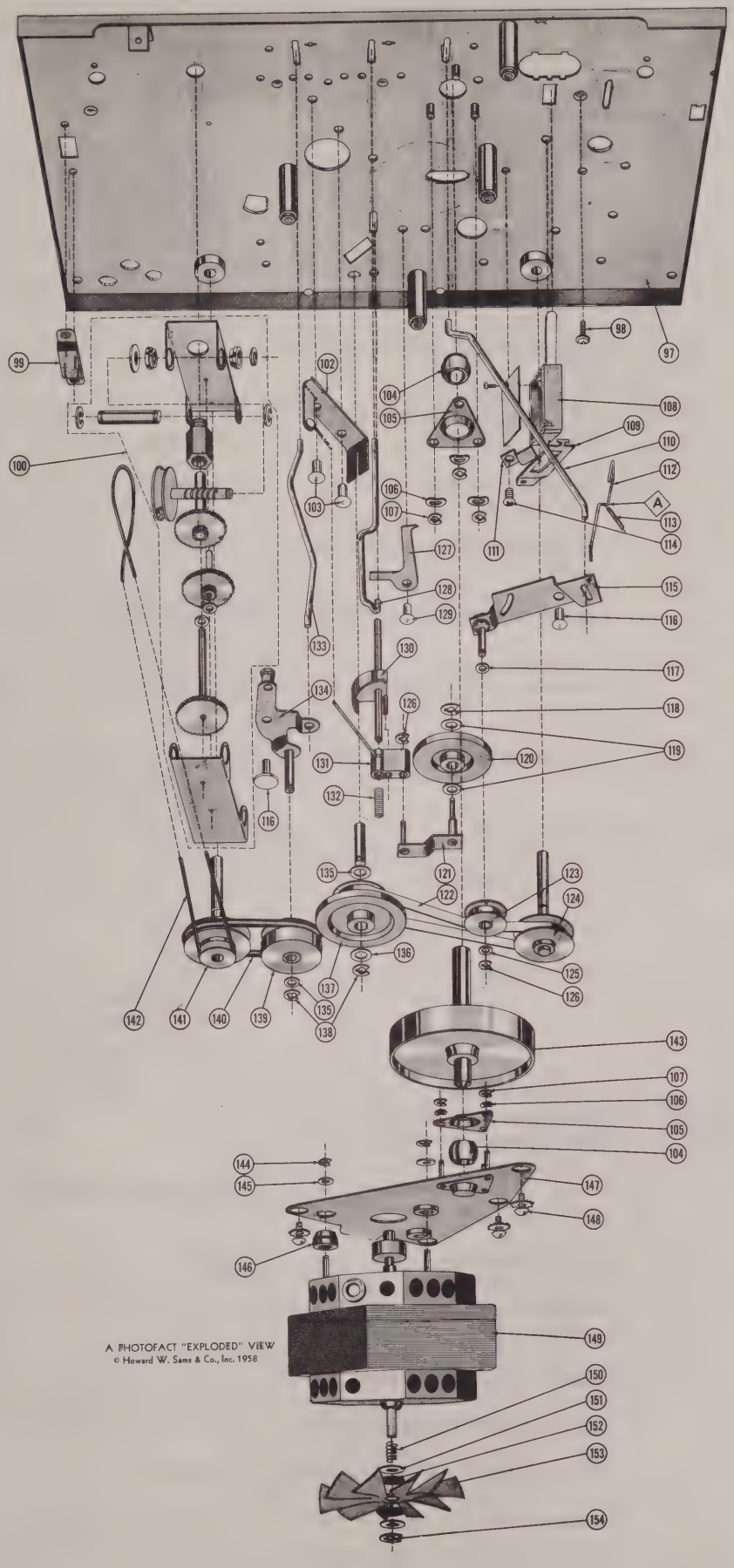


FIG. 7B EXPLODED VIEW OF PARTS BELOW BASEPLATE

SYMPTOM	CAUSE	REMEDY
	3. Brakes dragging.	3.(a) Adjust STOP button lever (88) until brakes release completely. (b) Check that brake return springs (17) not loose or broken. (c) Brake arm assembly (18) must be free and not binding. (d) PAUSE brake must release completely.
	4. Flat or bumpy pressure roller (53).	4. Replace.
	5. Capstan bearings not aligned properly.	5. Tap capstan slightly (bearings are self-aligning).
	6. Eccentric flywheel.	6. Replace.
	7. Bumpy or eccentric capstan idler (120).	7. Replace.
	8. Head bar bracket (33) loose.	8. See "Take-up reel revolves fast in PLAY or RECORD position.
	9. Pressure roller (53) not aligned properly.	9. See "Mechanical Adjustments."
Unit does not turn on with Off-On switch.	1. No voltage at motor or amplifier.	1.(a) Check that voltage is reaching AC leads. (b) Check that Off-On switch and automatic shut-off switch are closing.
Button interlock (87) inoperative.	1. Lock bar (87) return spring (96) loose or broken.	1. Replace.
	2. Buttons sheered.	2. Replace.
	3. Tabs on lock bar (87) bent.	3. Straighten or replace. Tab on back of interlock bar must be so set that the button lever on the STOP button can remove the interlock bar from under the PLAY and RECORD button.
RECORD button can be depressed without safety lever.	1. Record interlock return spring (86) off or broken.	1. Replace.
	2. Tabs on RECORD button interlock lever bent or broken.	2. Straighten or replace.
	3. Button sheered.	3. Replace.
Buttons do not stay depressed.	1. Latch bar (83) spring (96) off or broken.	1. Replace.
	2. Latch bar (83) sticking or bent.	2. Repair or replace.
Counter inoperative.	1. Counter belt (142) off pulleys.	1. Place back on pulleys.
	2. Counter dials (10) and (12) loose.	2. Repair or replace.
	3. Gears binding.	3. Counter must turn freely without binding. Check gears and pulleys for binding.
Does not erase clean.	1. Leads off erase head (37).	1. Replace.

TROUBLE CHART (Cont.)

SYMPTOM	CAUSE	REMEDY
	2. Erase head (37) not adjusted properly.	2. Erase head should be adjusted until the top of the head pole piece is approximately .005 inch above the edge of the tape.
	3. Low erase current.	3. To determine the proper erase current, place a 10-ohm precision resistor in series with either lead leading from the erase head. Place the recorder in the RECORD position and, using an AC voltmeter, check the voltage across the resistor. With the oscillator and erase head functioning properly, the voltage across the resistor should be approximately .3 volts. With a .3 volt reading, the required 30 milliamps of current is present.
PAUSE brake does not operate properly.	1. Tab on PAUSE brake not adjusted properly.	1. See "Take-up reel revolves rapidly when PLAY or RECORD buttons are depressed".
	2. Brake worn.	2. Replace.
	3. Brake return springs (17) off or broken.	3. Replace.
Supply reel does not revolve in REWIND position.	1. Loose reel screw (1).	1. Tighten.
	2. Rewind belt (140) off drive pulleys (139) and (141).	2. Place back on drive pulleys.
	3. Rewind torque not sufficient.	3. See "Mechanical Adjustments".
	4. Brake actuating spring (21) loose.	4. Replace.

MECHANICAL PARTS LIST

Ref. No.	Part No.	Description
1	8571	Reel Screw (Left Hand)
2	8570	Reel Screw (Right Hand)
3	8010	Reel Disc. Ass'y.
4	8140	Speed Knob
5	8118	Head Escutcheon
6	8256	Screw, Head Escutcheon Mtg.
7A	8B487	Knob, On-Off-Tone; Used in Model 575
	8B484	Knob, On-Off-Tone; Used in Model 570
7B	8B490	Knob, Volume; Used in Model 575
	8B486	Knob, Volume; Used in Model 570
7C	8B488	Knob, Balance; Used in Model 575 Only
8	8B489	Knob, Monaural-Stereo; Used in Model 575
	8B485	Knob, Monaural-Stereo; Used in Model 570
9	8407	Screw, #6-32 x 13/16
10	8097	Counter Dial (Small)
11	8122	Counter Dial Springs
12	8096	Counter Dial (Large)
13	S8117	Main Escutcheon
14	8214	Tri-Mount Stud
15	8361-CR	Cover Plate Ass'y.

Ref. No.	Part No.	Description
15A		Cover Plate Ass'y.; Used in Model 575 Only
16	8296	Screw (#6-32 Self Tap. Shoulder)
17	8138	Spring, Brake Return
18	8297	Brake Arm Ass'y.
19	8567	Rivet
20	S8181	Take-up Arm Ass'y.
21	8441	Spring, Brake Actuating
22	8199	Fibre Washer
23	8037	Rivet
24	8293	Safety Switch Release Lever
25	8294	Safety Switch Release Wire
26	8048	Knob, Pause
27	8178	Brake Shoe Ass'y., Pause
28	8017	Spring, Pause Brake Actuating
29	4092	Rivet
30	8044	Pause Lever
31	8078	Spring, Capstan Idler Return
32	8152	Screw, Head Bar Adj.
33	8147	Head Bar Bracket
34	8138	Spring, Head Bar Return
35	8520	Spring Washer
36	8593	Head Bar & Plate Ass'y. (Includes

Ref. No.	Part No.	Description
		Erase Head Bracket, Pressure Roller Stud, Tape Guide & Head Mtg. Screws)
37		Erase Head
38		Stacked Play-Record Head
40	2300	#2-56 Hex. Nut, Erase Hd. Adj.
41	8424	Flat Washer
42	2300	#2-56 Hex. Nut. Play-Record Head Adjustment
44	2300	#2-56 Hex. Nut, Head Nest Mtg.
45	2300	#2-56 Hex. Nut. Play-Record Hd. Azimuth Adj.
47	8131	Spring, Head Adjusting
48	8023	Head Nest
49	8045	Tape Guide
50	8175	#2-56 x 1/8 Phillips R.H.M.S.
51	8489	"E" Ring
52	8266	Fibre Washer
53	8123	Pressure Roller
54	1588	"C" Washer
55	8390	Spring, Pressure Pad
56	8102	Pressure Pad Arm
	8393	Pressure Pad Arm (With Felt Pad)
57	8067	Pressure Pad (Felt)
62	8048	Monitor Knob
63	2857	Rivets
64	8398	Pal Nut, Timer Mtg.
65	6515	Flat Washer (Reel Height Spacer)
66	1652	"C" Washer
67	2583	Fibre Washer
68	8398	Pal Nut
69	8298	Screw, #6-32 Self Tapping
70	8173	Rewind Actuating Spring
71	S8174	Record Actuating Spring
72	8285	Brake Actuating Hook
73	S8174	Play Actuating Spring
74	8173	Forward Actuating Spring
75	8207	Fibre Safety Switch Shield
76	8313	Baseplate Mtg. Screw
77	8050	Tape Guide
78	8434	Head Bar Bracket Spring
79	8031	Dust Shield
80	2274	Fibre Washer
81	8036	Button Housing Ass'y. (Complete) Consists of:
82	8074	Control Button-Rewind, Record, Stop, Play, or Fwd.
83	8082	Latch Bar
84	8037	Rivet
85	8432	Interlock Lever
86	8128	Spring
87	8114	Lock Bar
88	8024	Button Lever
89	8256	Screw, #4-38
90	8382	Button Housing & Lever Ass'y. Includes Items, 84, 85, 87, and 8022 Button Housing.
91	8089	Rod (Button Lever)
92	1652	"C" Washer
93	1588	"C" Washer
94	8116	Stop Rod
95	8125	Spring

Ref. No.	Part No.	Description
96	8128	Spring
97	8631	Baseplate Ass'y (Includes all Parts That are Permanently Fixed)
98	8298	Tape Guide Mtg. Screw
99	8220	Monitor Switch
100	8046	Counter Ass'y. (Complete)
101	S8006	Reel Bearing
102	S8076	Cam Link Spring Guide
103	2857	Rivets
104	8084	Capstan Bearing
105	8098	Bearing Plate
106	8133	Spring Washers
107	1588	"C" Washer
108	8038	Switch Ass'y.
109	8090	Switch Mtg. Bracket
110	8121	Take-up Rod
111	8107	Control Rod Guide
112	8326	Take-up Bar Actuator
113	8130	Spring
114	8298	Screw
115	S8377	Take-up Bar Ass'y.
116	8331	Rivet
117	2829	Fibre Washer
118	8488	"E" Washer
119	2829	Fibre Washer
120	8079	Capstan Idler
121	S8391	Capstan Idler Pivot Arm
122	8034	Take-up Belt
123	S8103	Tension Pulley & Bearing
124	8182	R.H. Reel Pulley
125	8568	Cork Washer
126	8488	"E" Ring
127	8014	Bell Crank
128	8009	Brake Rod
129	8037	Rivet
130	8039	Cam & Shaft Ass'y.
131	S8029	Cam Link
132	8535	Cam Link Lift Spring
133	8035	Rewind Rod
134	S8376	Rewind Arm
135	2583	Fibre Washer
136	8566	Cork Washer
137	8018	Take-up Driver
138	8489	"E" Ring
139	8106	Rewind Driver
140	8063	Rewind Belt
141	8183	L. H. Reel Pulley
142	8141	Counter Belt
143	8110	Flywheel & Capstan Ass'y.
144	1652	"C" Washer
145	8373	Washer
146	8060	Rubber Grommet
147	8378	Sub-Plate Ass'y. (Less Grommets & Capstan Bearing)
148	8146	Screw
149	8015	Motor
150	8258	Spring
151	2279	Washer, Metal
152	7470	Washer, Cork
153	8255	Fan
154	1719	"C" Washer
	8611	50 Cycle Conversion Kit

MODEL 570 PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE
V1	Channel "A" Preamp.	12AX7/ ECC83①
V2	AF Amp-Bias Osc.	12AU7/ ECC82①
V3	Channel "A" Output	6BQ5/ EL84 ①
V4	Channel "B" Preamp.	12AX7/ ECC83①
V5	Channel "B" AF Amp.	6C4
V6	Channel "B" Output	6BQ5/ EL84①
V7	Rectifier	5V4GA

①Domestic type listed may not be directly interchangeable in some instance.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	Columbia Records PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲40	450	11B727	AFH4-18-30	D0174	FP447	TMQ-23	Q-061	TVL-4773
B	■40	450					TD-20-450		
C	▲20	450							
D	20	450							
C2A	▲40	450	11B727	AFH4-18-30	D0174	FP447	TMQ-23	Q-061	TVL-4773
B	■40	450					TD-20-450		
C	▲20	450							
D	20	450							
C3	10	25	11B728	PRS25V10	BBR10-25	TC22	TD-10-25	MT-0210	TVA-1204
C4	10	25	11B728	PRS25V10	BBR10-25	TC22	TD-10-25	MT-0210	TVA-1204
C5	10	25	11B728	PRS25V10	BBR10-25	TC22	TD-10-25	MT-0210	TVA-1204
C6	50	25	11B729	PRS25V50	BBR50-25	TC29	TD-50-25	MT-0250	TVA-1206
C7	10	25	11B728	PRS25V10	BBR10-25	TC22	TD-10-25	MT-0210	TVA-1204
C8	10	25	11B728	PRS25V10	BBR10-25	TC22	TD-10-25	MT-0210	TVA-1204
C9	10	25	11B728	PRS25V10	BBR10-25	TC22	TD-10-25	MT-0210	TVA-1204
C10	50	25	11B729	PRS25V50	BBR50-25	TC29	TD-50-25	MT-0250	TVA-1206

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	Columbia Records PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C11	750			DI-00075	DD-751	L10T75	UC-5375	5GA-T75	Note 1.
C12	100000				DF-104				
C13	20000			BPD-02	DD-203	BYB6S2		5HK-S2	
C14	.047	400		P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C15	47			BPD-000047	DD-470	L10Q47	UC-5447	5GA-Q47	
C16	20000			BPD-02	DD-203	BYB6S2		5HK-S2	
C17	.047	400		P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C18	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C19	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C20	470			BPD-00047	DD-471	BYA10T47	UC-5347	5GA-T47	
C21	2500	1000			DD-252	BYA10D25		5GA-D25	
C22	1000	1000		HVD-15-1000	DD-102	BYA10D1M	DC3021	5GA-D1	
C23	.1	400		P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C24	2000			BPD-002	DD-202	BYA10D2	DC522	5HK-D2	
C25	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C26	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C27	.047	400		P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C28	180			DI-00018	DD-181	L10T18	UC-5318	5GA-T18	
C29	1.5	200							
C30	100000								
C31	20000			BPD-02	DD-203	BYB6S2		5HK-S2	
C32	.047	400		P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C33	47			BPD-000047	DD-470	L10Q47	UC-5447	5GA-Q47	
C34	20000								
C35	.047	400		P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C36	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C37	20000			BPD-02	DD-203	BYB6S2		5HK-S2	
C38	1.5	200							

Note 1. Some versions may use 33mmf in this application.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	Columbia Records PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	Switch		9B579					Mono-Stereo
B	1meg							Volume
C	1meg							Volume
R2A	500K		9B580			Q11-133		Tone
B	500K					M11-133		Tone
C	Switch					76-1		Power On-Off
R3A	2meg		9B581	B-76	A47-2meg-Z	Q13-139	U55	Gain Balance, Channel B
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R4	100Ω	2(WW)	9B582					Hum Adj.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	Columbia Records PART No.	NOTES
R5	470K			
R6	1000Ω			
R7	1meg			
R8	220K			
R9	100K			
R10	1500Ω			
R11	4.7Ω	1		
R12	1500Ω			
R13	220K			
R14	47K 5%			
R15	100K			
R16	27K			
R17	4700Ω			
R18	2.2meg			
R19	100K			
R20	2200Ω			
R21	18K			
R22	1000Ω			
R23	150Ω	2		
R24	220K			
R25	100K			
R26	100K			
R27	47K			
R28	10K			

ITEM No.	RATING OHMS	RATING WATT	Columbia Records PART No.	NOTES
R29	180K			
R30	220K			
R31	4.7Ω	2		
R32	1meg			
R33	220K			
R34	1500Ω			
R35	82K	1		
R36	4.7Ω	1		
R37	100K			
R38	220K			
R39	1500Ω			
R40	47K			
R41	100K			
R42	27K			
R43	4700Ω			
R44	150K			
R45	2200Ω			
R46	10K			
R47	150Ω	2		
R48	4.7Ω	2	16B420	
R49	270Ω	5(WW)	16B419	
R50	270Ω	5(WW)		
R51	270Ω	5(WW)		

COILS (RF-IF)

ITEM No.	USE	Columbia Records PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	Bias Osc. Coil	20B320					

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	Columbia Records PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @.89A	650VCT @.120A	5V @1.5A	2B110						
	SEC. 3	SEC. 4	SEC. 5							
	6.3V @2.3A									

PARTS LIST AND DESCRIPTIONS (Continued) MODEL 570

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	Columbia Records PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	3400Ω	3-4Ω	3B223	Z1011	A-3018①	AU-607	A-3825	26S50①	S-4X	①Drill new mounting hole.
T3	3400Ω	3-4Ω	3B223	Z1011	A-3018①	AU-607	A-3825	26S50①	S-4X	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	Columbia Records PART No.	QUAM PART No.	
SP1	5" x 7"	PM	3-4Ω	1B130 ①	57A21	①Channel "A"
SP2	3½"	PM	1Ω	1B131 ①	3A15T	②Channel "B"
SP3	5" x 7"	PM	3-4Ω	1B130 ②	57A21	
SP4	3½"	PM	1Ω	1B131 ②	3A15T	

MISCELLANEOUS

ITEM No.	PART NAME	Columbia Records PART No.	NOTES
M1	Head	19B605	Record, Playback, Erase, A and B Channel.
M2	Neon Lamp	19B604	NE-51, Normal
M3	Neon Lamp	19B604	NE-51, Distort
M4	Switch		Play, Slide Type
M5	Switch		Record, Slide Type

CABINETS & CABINET PARTS

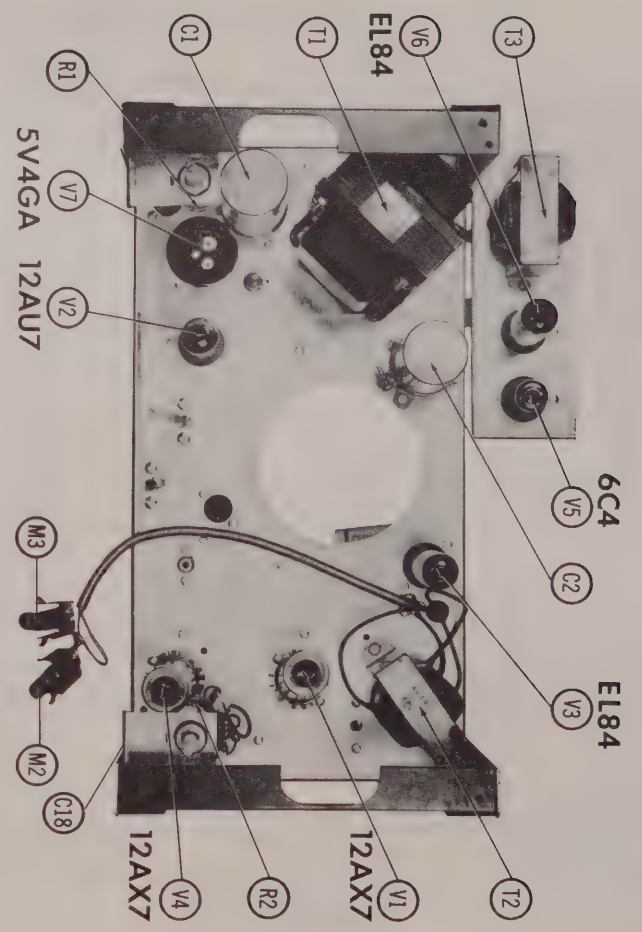
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

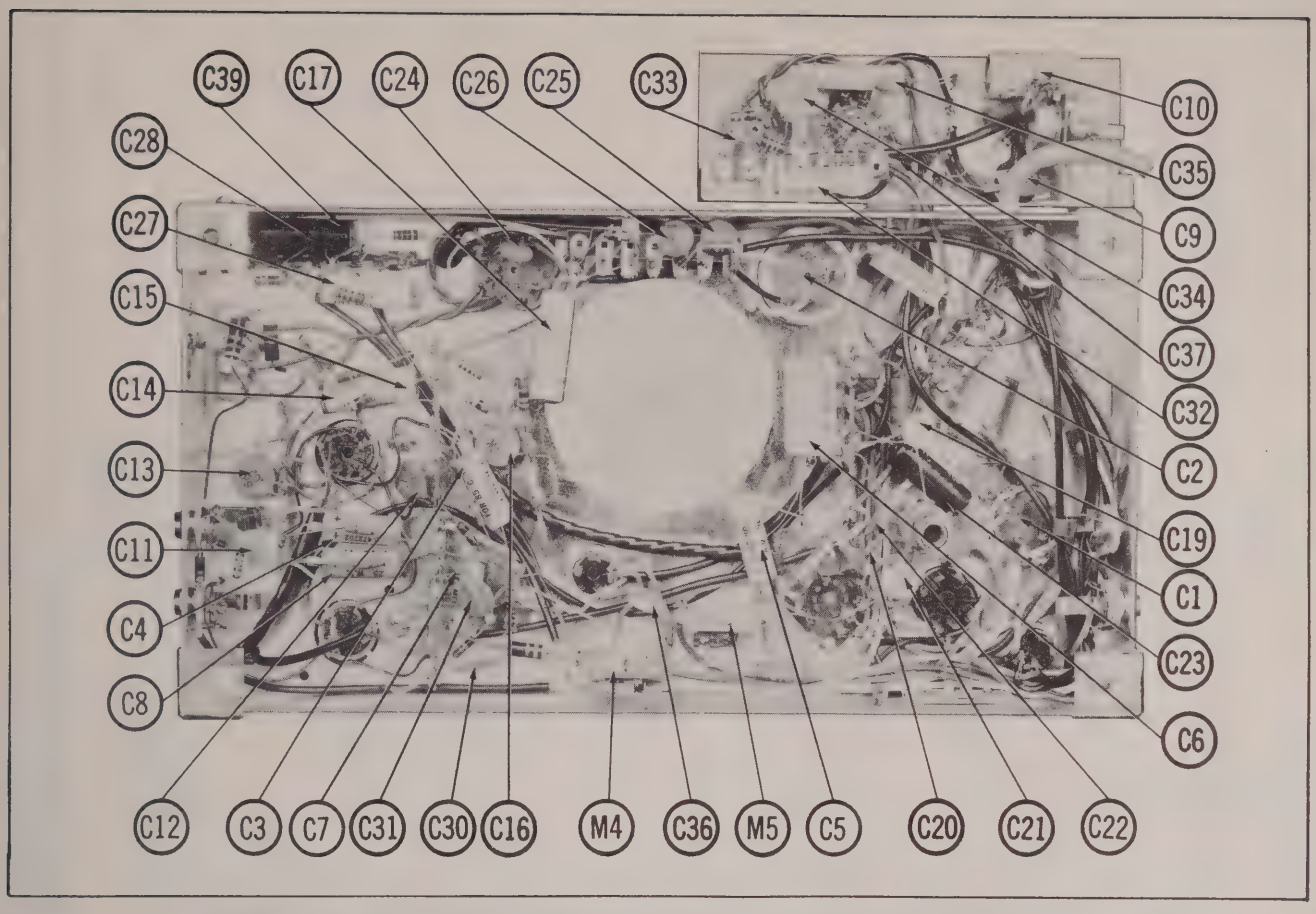
NAME	PART NO.	DESCRIPTION
Knob	8B484	On-Off-Tone, Model 570
Knob	8B485	Monitor-Stereo, Model 570
Knob	8B486	Volume, Model 570
Cabinet	17B986	Model 570
Cabinet	17B987	External Speaker, Model 570

WIRING DATA

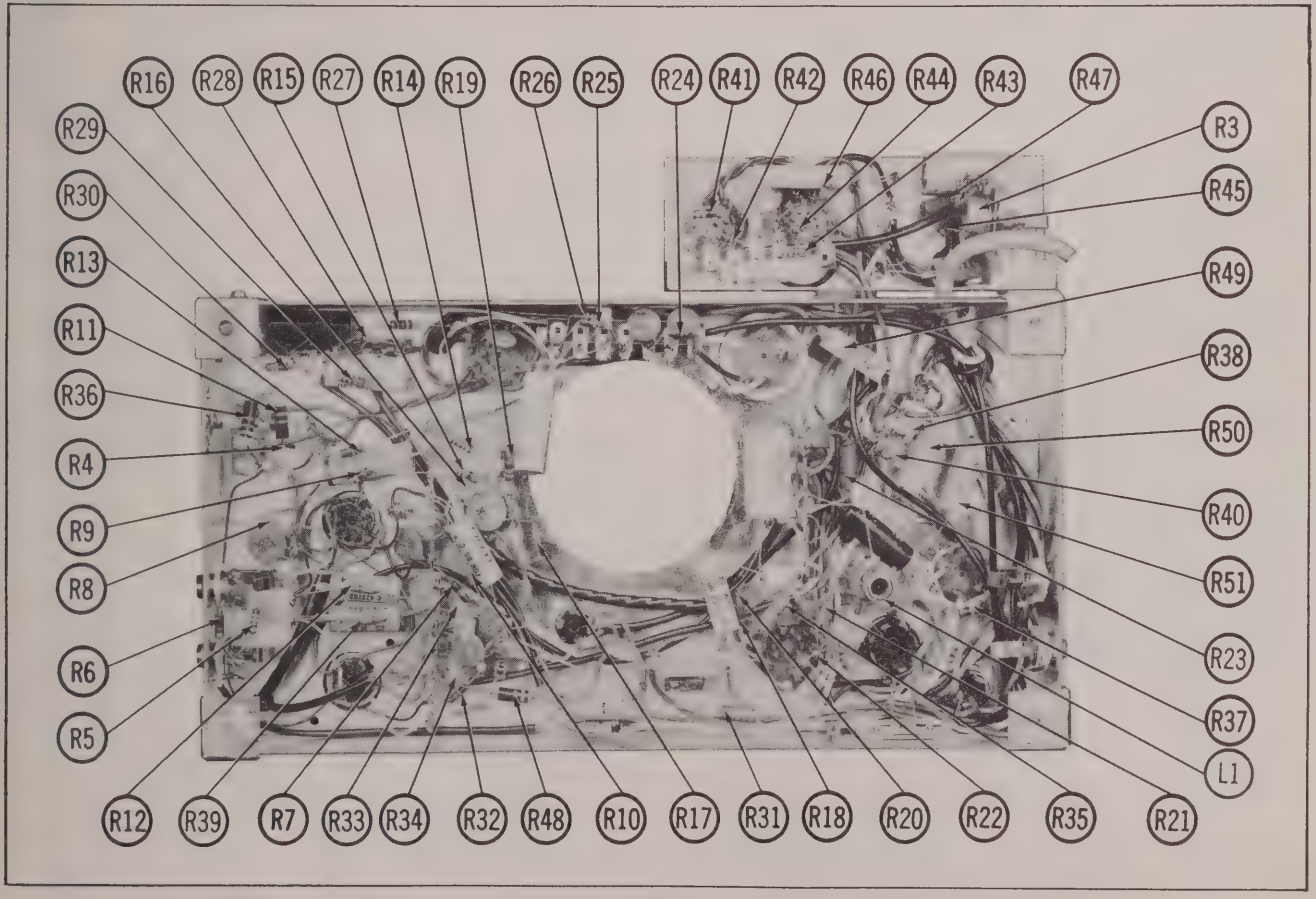
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

CHASSIS—TOP VIEW

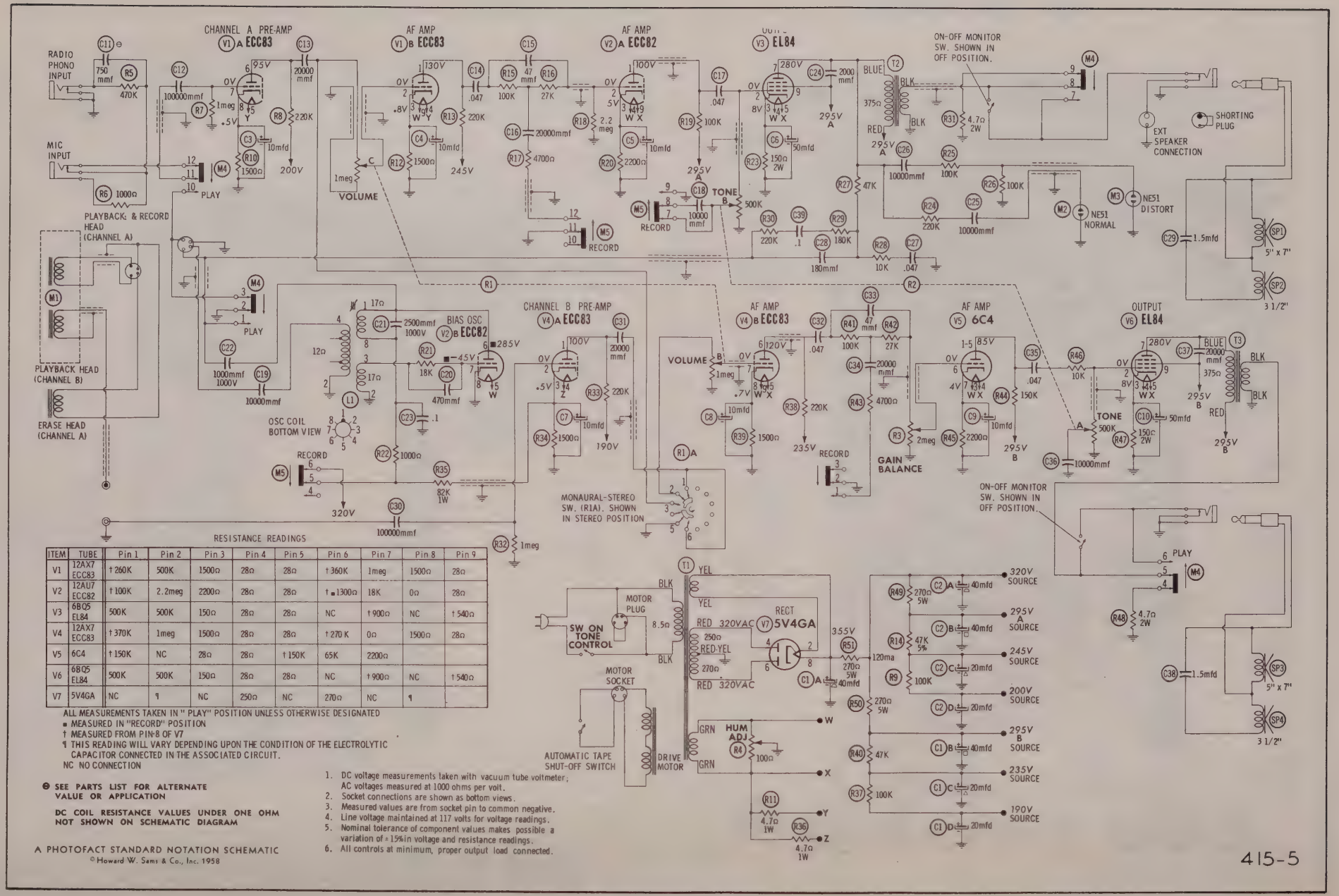




MODEL 570 - CHASSIS BOTTOM VIEW - CAPACITOR & MISC. IDENT.



MODEL 570 - CHASSIS BOTTOM VIEW - RESISTOR & INDUCTOR IDENT.



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7 ECC83	†260K	500K	1500Ω	28Ω	28Ω	†360K	1meg	1500Ω	28Ω
V2	12AU7 ECC82	†100K	2.2meg	2200Ω	28Ω	28Ω	†▪1300Ω	18K	0Ω	28Ω
V3	6BQ5 EL84	500K	500K	150Ω	28Ω	28Ω	NC	†900Ω	NC	†540Ω
V4	12AX7 ECC83	†370K	1meg	1500Ω	28Ω	28Ω	†270K	0Ω	1500Ω	28Ω
V5	6C4	†150K	NC	28Ω	28Ω	†150K	65K	2200Ω		
V6	6BQ5 EL84	500K	500K	150Ω	28Ω	28Ω	NC	†900Ω	NC	†540Ω
V7	5V4GA	NC	¶	NC	250Ω	NC	270Ω	NC	¶	

ALL MEASUREMENTS TAKEN IN " PLAY" POSITION UNLESS OTHERWISE DESIGNATED
▪ MEASURED IN "RECORD" POSITION
† MEASURED FROM PIN 8 OF V7
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
NC NO CONNECTION

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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415-5

MODEL 570 - SCHEMATIC

MODEL 575 PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Channel "A" Preamp.	12AX7	
V2	Channel "A" AF Amp.	12AU7	
V3	Channel "A" Output	EL84	
V4	Bias Oscillator	6SN7GT	
V5	Channel "B" Preamp.	12AX7	
V6	Channel "B" AF Amp.	12AU7	
V7	Channel "B" Output	EL84	
V8	Rectifier	5V4GA	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	Columbia Records PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1	40	450		AFH1-52	A0480	FP146	TMS-57	S-270	TVL-1725
C2A	▲40	450	11B727	AFH4-18-30	D0174	FP447	TMQ-23	Q-061	TVL-4773
B	■40	450					TD-20-450		
C	▲20	450							
D	20	450				FP447	TMQ-23	Q-061	TVL-4773
C3A	▲40	450	11B727	AFH4-18-30	D0174		TD-20-450		
B	■40	450							
C	▲20	450							
D	20	450							
C4	10	25	11B728	PRS25V10	BBR10-25	TT50X10	TD-10-25	MT-0210	TVA-1204
C5	10	25	11B728	PRS25V10	BBR10-25	TT50X10	TD-10-25	MT-0210	TVA-1204
C6	10	25	11B728	PRS25V10	BBR10-25	TT50X10	TD-10-25	MT-0210	TVA-1204
C7	10	25	11B728	PRS25V10	BBR10-25	TT50X10	TD-10-25	MT-0210	TVA-1204
C8	10	25	11B728	PRS25V10	BBR10-25	TT50X10	TD-10-25	MT-0210	TVA-1204

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	Columbia Records PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C9	33			BPD-000033	DD-330	L10Q33	UC-5433	5GA-Q33	
C10	100000				DF-104				
C11	20000			BPD-02	DD-203	BYB6S2		5HK-S2	
C12	20000			BPD-02	DD-203	BYB6S2		5HK-S2	
C13	2000			BPD-002	DD-202	BYA10D2	DC522	5HK-D2	
C14	20000			BPD-02	DD-203	BYB6S2		5HK-S2	
C15	.1	400		P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C16	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C17	100			BPD-0001	DD-101	L10T1	UC-531	5GA-T1	Note 1.
C18	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C19	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C20	.05	400		P488N-05	DF-503	CUB4S5	GEM-415	4TM-S5	
C21	.1	400		P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C22	180			DI-00018	DD-181	L10T18	UC-5318	5GA-T18	Note 1.
C23	220			BPD-00022	DD-221	L10T22	UC-5322	5GA-T22	
C24	220			BPD-00022	DD-221	L10T22	UC-5322	5GA-T22	
C25	10000			BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C26	1000			BPD-001	DD-102	BYA6D1	DC521	5HK-D1	
C27	2000			BPD-002	DD-202	BYA10D2	DC522	5HK-D2	
C28	1000			BPD-001	DD-102	BYA6D1	DC521	5HK-D1	
C29	100000				DF-104				
C30	100			BPD-0001	DD-101	L10T1	UC-531	5GA-T1	Note 1.
C31	20000			BPD-02	DD-203	BYB6S2		5HK-S2	
C32	20000			BPD-02	DD-203	BYB6S2		5HK-S2	
C33	2000			BPD-002	DD-202	BYA10D2	DC522	5HK-D2	
C34	20000			BPD-02	DD-203	BYB6S2		5HK-S2	
C35	.1	600		P688N-1	DF-104	CUB6P1	GEM-601	6TM-P1	
C36	10000			BPD-01	DD-103	BYA6D1	DC511	5HK-S1	
C37	2000	1000			DD-202	BYA10D2		5GA-D2	
C38	100			BPD-0001	DD-101	L10T1	UC-531	5GA-T1	

Note 1. Not used in some versions.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Columbia Records PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1meg	½	9B576	BB-107	AD47-1meg-Z	Q13-137		Volume
B	1meg	½		Not Req.	Not Req.	M13-137		Volume
C	Shaft			Not Req.	KSS-3	Not Req.		
R2A	100K	½	9B577		AD47-100K-S	Q11-128		Tone
B	100K	½			Not Req.	M11-128		Tone
C	Shaft				KSS-3	Not Req.		
D	Switch				SWE-12	76-1		Power On-Off
R3A	Switch		9B578					Mono-Stereo
B	1meg	½						Balance
R4	100Ω	2(WW)	9B582					Hum Adj.
R5	100Ω	2(WW)	9B582					Hum Adj.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		Columbia Records PART No.	NOTES
	OHMS	WATT		
R6	470K			
R7	1000Ω			
R8	4.7meg	1		
R9	82K	1		
R10	100K			
R11	82K	1		
R12	4700Ω			
R13	68K			
R14	10K			
R15	1meg			
R16	100K			
R17	1000Ω			
R18	1.8meg			
R19	270K			
R20	3300Ω			
R21	47K			
R22	100K			
R23	22K			
R24	8200Ω	2	16B418	
R25	220K			
R26	220K			
R27	220K			
R28	47K			
R29	27K			
R30	180K			
R31	100K			

ITEM No.	RATING		Columbia Records PART No.	NOTES
	OHMS	WATT		
R32	47K			
R33	47K			
R34	4.7meg			
R35	100K			
R36	100K			
R37	220K			
R38	4700Ω			
R39	10K			
R40	10K			Note 1
R41	68K			
R42	100K			
R43	1000Ω			
R44	1.8meg			
R45	100K			
R46	3300Ω			
R47	47K			
R48	22K			Note 2.
R49	100K			
R50	8200Ω	2	16B418	
R51	500Ω	10(WW)	16B417	
R52	500Ω	10(WW)	16B417	
R53	1500Ω			Note 3.
R54	1500Ω			Note 3.
R55	50Ω	7(WW)		Note 4.
R56	4.7Ω	1		
R57	4.7Ω	2		

Note 1. Some versions may use 100K in this application.
Note 2. Some versions may use 33K in this application.
Note 3. Not used in some versions.
Note 4. Some versions may use 100Ω 10W in this application (Part #16B416)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					
		Columbia Records PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	Bias Osc. Coil	20B321					

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	Columbia Records PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @ 1.15A	740VCT @ .150A	5V @ 1.8A	2B109						
	SEC. 3	SEC. 4	SEC. 5							
	6.3V @ 2.9A	6.3V @ .3A								

PARTS LIST AND DESCRIPTIONS (Continued) MODEL 575

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA Columbia Records PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	4700Ω	32Ω Tap ⓐ 3-4Ω	3B224							
T3	4700Ω	32Ω Tap ⓐ 3-4Ω	3B224							

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA Columbia Records PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1	8"	PM	3-4Ω	1B129 ①	8A31	①Channel "A"
SP2	3½"	PM	11Ω	1B131 ①	3A15T	②Channel B
SP3	8"	PM	3-4Ω	1B129 ②	8A31	
SP4	3½"	PM	11Ω	1B131 ②	3A15T	

MISCELLANEOUS

ITEM No.	PART NAME	Columbia Records PART No.	NOTES
M1	Head	19B602	Record, Erase
M2	Head	19B603	C Channel
M3	Neon Lamp	19B604	NE-51, Normal
M4	Neon Lamp	19B604	NE-51, Distort
M5	Switch		Play, Slide Type
M6	Switch		Record, Slide Type.

CABINETS & CABINET PARTS

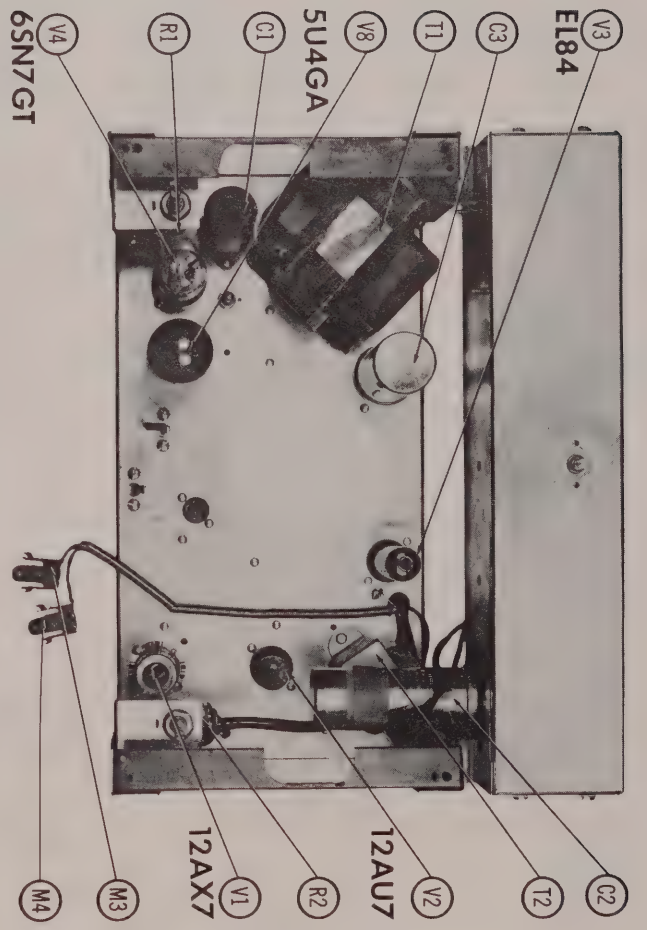
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

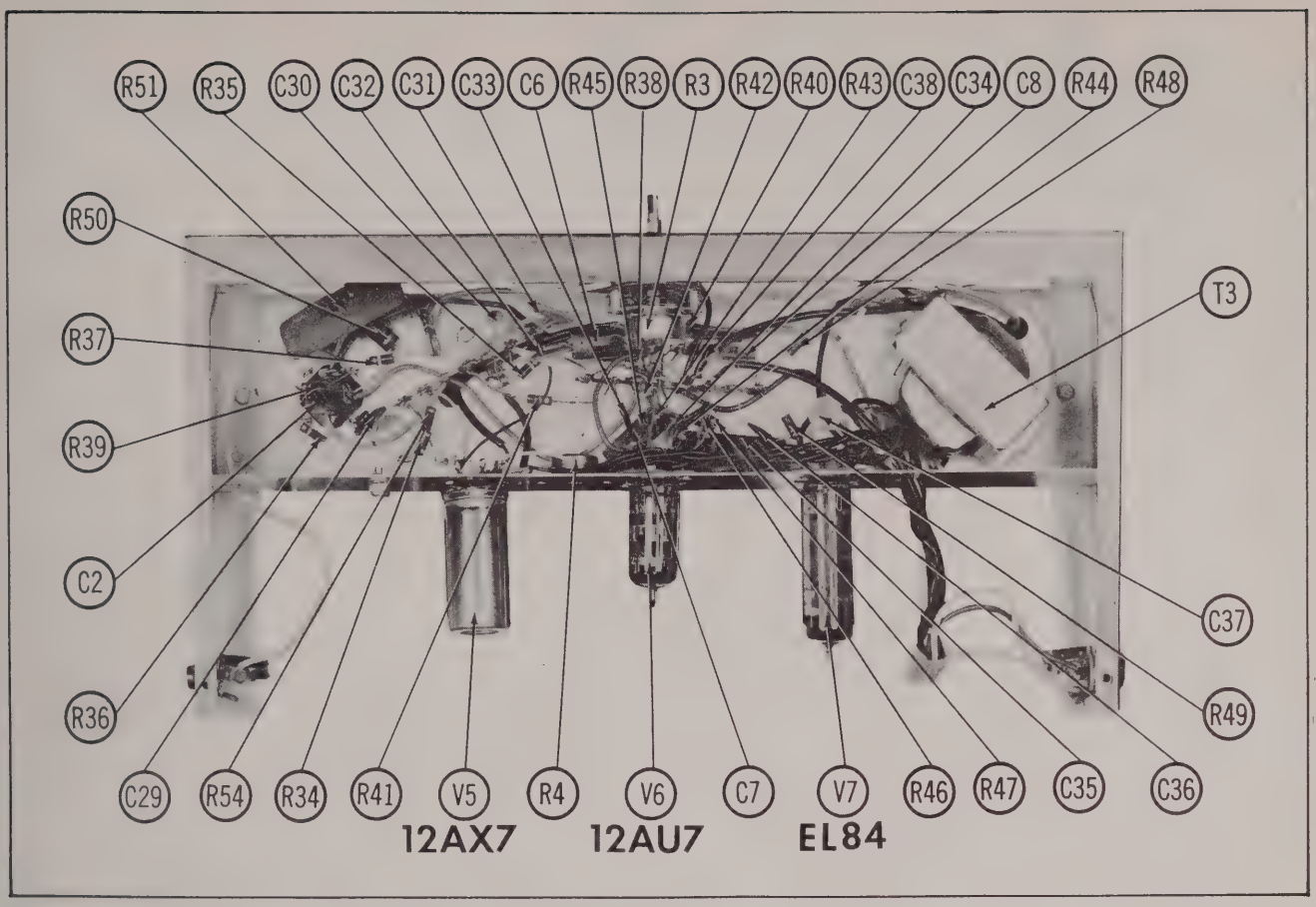
NAME	PART NO.	DESCRIPTION
Knob	8B487	On-Off-Tone, Model 575
Knob	8B489	Monitor-Stereo, Model 575
Knob	8B490	Volume, Model 575
Knob	8B488	Balance, Model 575
Cabinet	17B988	Model 575
Cabinet	17B989	External Speaker, Model 575

WIRING DATA

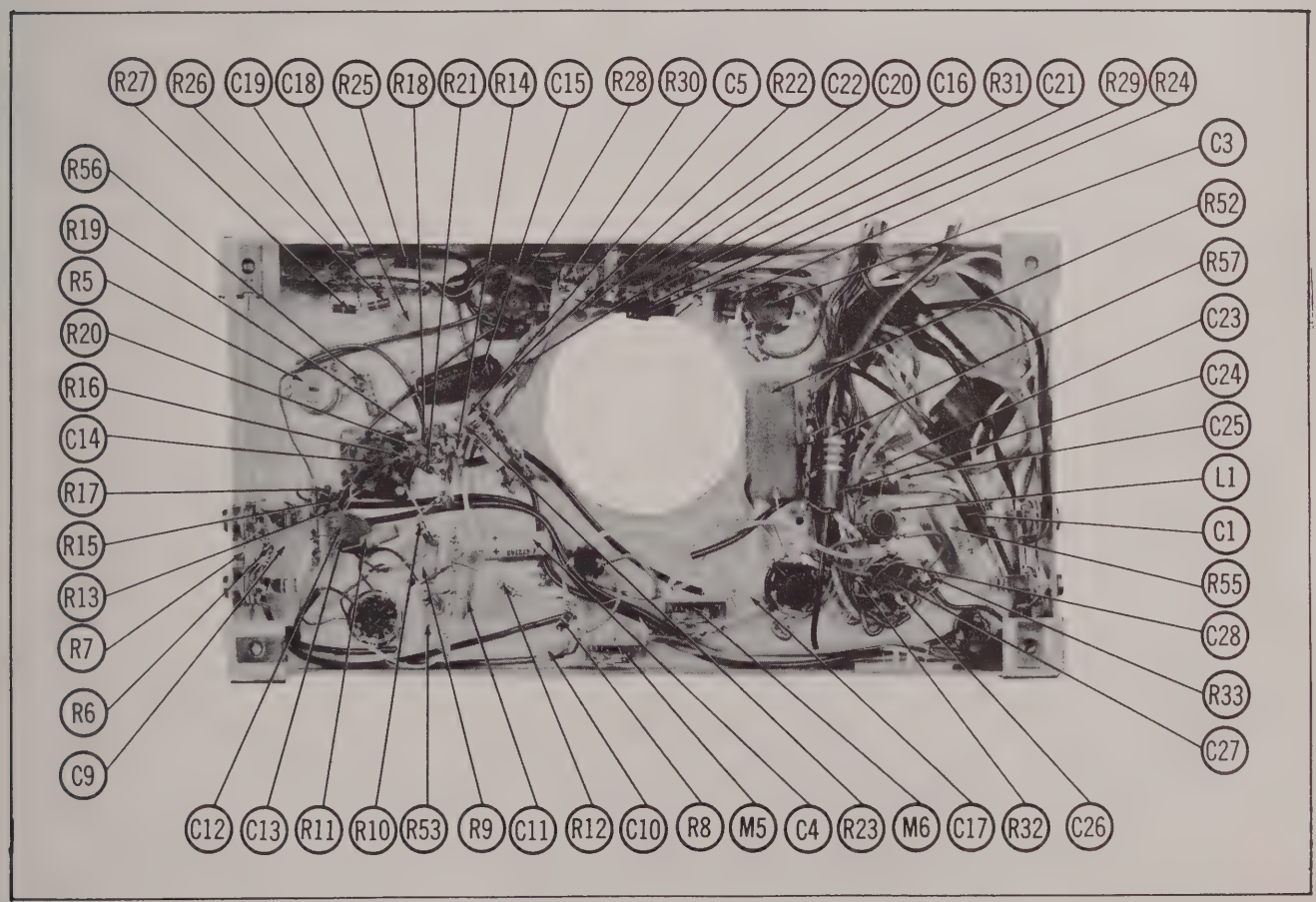
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

CHASSIS—TOP VIEW

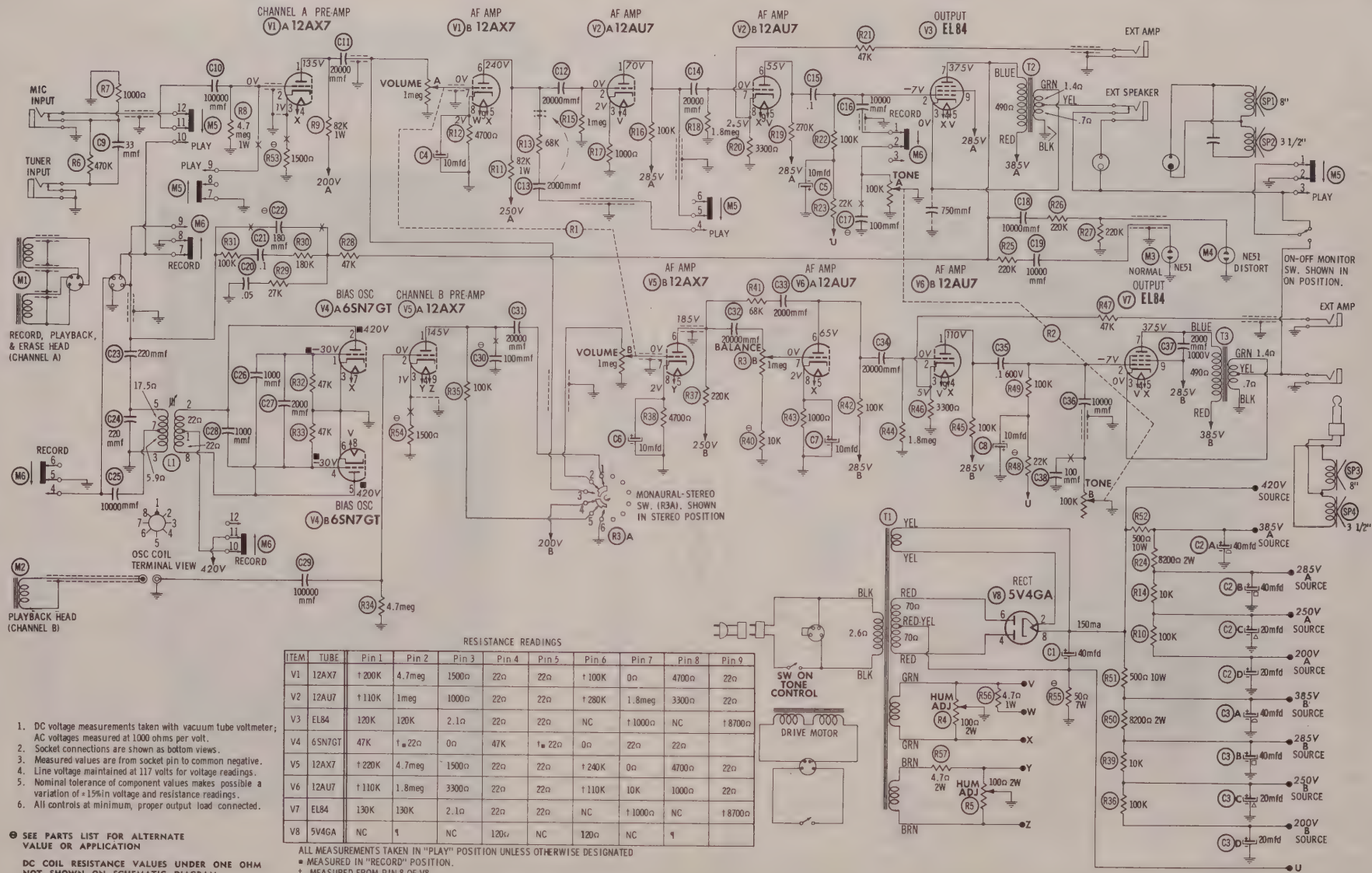




MODEL 575 - PREAMP CHASSIS BOTTOM VIEW



MODEL 575 - AMP CHASSIS BOTTOM VIEW



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	†200K	4.7meg	1500Ω	22Ω	22Ω	†100K	0Ω	4700Ω	22Ω
V2	12AU7	†110K	1meg	1000Ω	22Ω	22Ω	†280K	1.8meg	3300Ω	22Ω
V3	EL84	120K	120K	2.1Ω	22Ω	22Ω	NC	†1000Ω	NC	†8700Ω
V4	6SN7GT	47K	†▪22Ω	0Ω	47K	†▪22Ω	0Ω	22Ω	22Ω	
V5	12AX7	†220K	4.7meg	1500Ω	22Ω	22Ω	†240K	0Ω	4700Ω	22Ω
V6	12AU7	†110K	1.8meg	3300Ω	22Ω	22Ω	†110K	10K	1000Ω	22Ω
V7	EL84	130K	130K	2.1Ω	22Ω	22Ω	NC	†1000Ω	NC	†8700Ω
V8	5V4GA	NC	¶	NC	120Ω	NC	120Ω	NC	¶	

ALL MEASUREMENTS TAKEN IN "PLAY" POSITION UNLESS OTHERWISE DESIGNATED
▪ MEASURED IN "RECORD" POSITION.
† MEASURED FROM PIN 8 OF V8
¶ THIS READ WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

\ PHOTOFACT STANDARD NOTATION SCHEMATIC

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MODEL 575 - SCHEMATIC

PHOTOFACT* Folder

COLUMBIA RECORDS
MODELS 515, 541

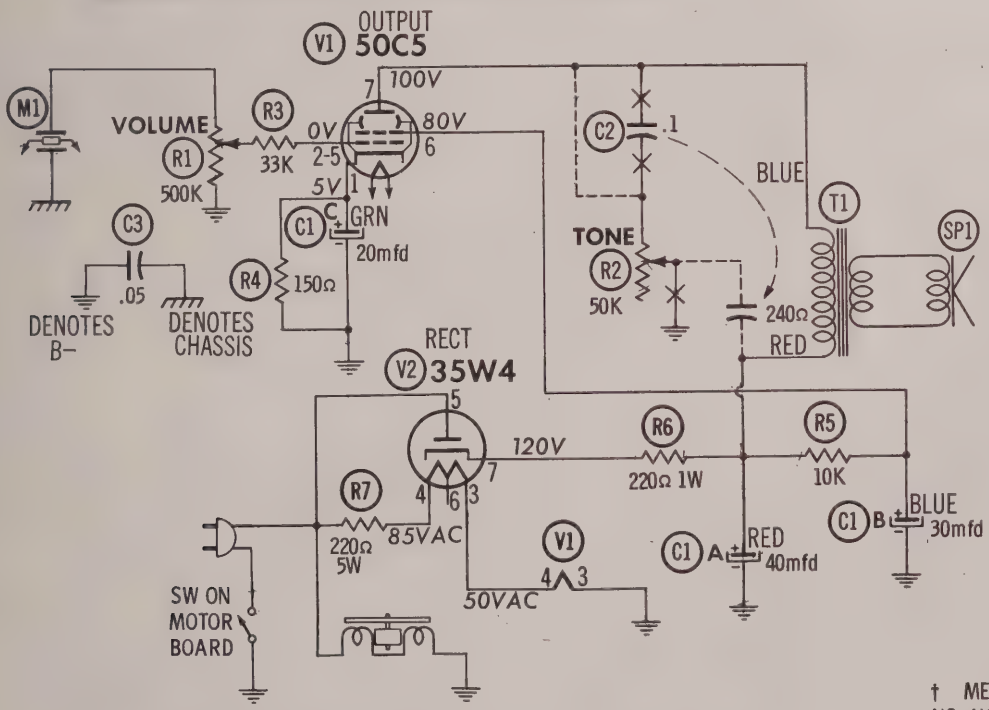
COLUMBIA RECORDS
MODELS 515, 541

MODEL 541

TRADE NAME	Columbia Records Models 515, 541
MANUFACTURER	Columbia Records, 799 Seventh Ave., New York 19, N.Y.
TYPE SET	AC Operated Phono Amplifier with 4 Speed Automatic Record Changer
TUBES (Two)	Types 50C5 Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycle RATING .25 Amp. @117 Volts AC (22 Watts Less Motor)

FOR SERVICE INFORMATION ON RECORD CHANGER USED IN MODEL 541—SEE SIMILAR MONARCH UA8—PHOTOFACT SET 381 FOLDER 11.

FOR SERVICE INFORMATION ON RECORD CHANGER USED IN MODEL 515— SEE SIMILAR V-M 1200A—PHOTOFACT SET 353 FOLDER 16 OR RECORD CHANGER MANUAL RC-10.



Pin No.	V1	V2
1	150Ω	TP
2	33K	TP
3	0Ω	50Ω
4	50Ω	85Ω
5	33K	300Ω
6	†10K	NC
7	†460Ω	20K(MIN)

† MEASURED FROM PIN 7 OF V2
NC NO CONNECTION
TP TIE POINT

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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H484

SET 415 FOLDER 6

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Output	50C5	
V2	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	Columbia Records PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	40	150	11B706	AFH3-09	C0080	FP311.4 TC42	TMT-8	T-040	TVL-3438
B	30	150							
C	20	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	Columbia Records PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	.1	400		P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	Note 1
C3	.05	400		P488N-05	DF-503	CUB4S5	GEM-415	4TM-S5	

Note 1. Some versions may use .01mfd in this application

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Columbia Records PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	500K	½	9B545	B-59	A47-500K-S	Q11-133	U50	Volume
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R2A	50K	½	9B557	B-31	A47-50K-S	Q11-123	U35	Tone
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		Columbia Records PART No.	NOTES
	OHMS	WATT		
R3	33K			
R4	150Ω			
R5	10K			

ITEM No.	RATING		Columbia Records PART No.	NOTES
	OHMS	WATT		
R6	220Ω	1	16A409	Note 1
R7	220Ω	5(WW)		

Note 1. Some versions may use 150Ω in this application.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	Columbia Records PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2300Ω	3-4Ω	3B205 (TR109)	Z1101	A-3025	AU-605	A-3332	22S45 ①	S-12X	①Drill New Mounting Hole

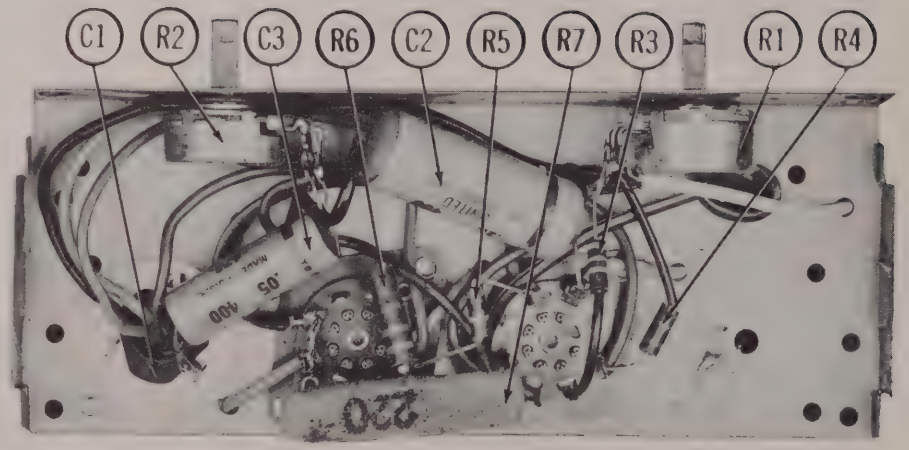
SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	Columbia Records PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	1B113	4A1	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	Columbia Records PART No.	ASTATIC PART No.		JENSEN PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	MOUNT	
M1	TC-8H	310-TB	N8-1 & N8-3			Model 541
	T0-400-04					Model 515

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA				REMARKS
	Columbia Records PART No.	JENSEN PART No.	WALCO PART No.		
M2	(LP)	† CRA 55LP or ♦ CRA 55LPD	† W-64MGS		† Jewel ♦ Diamond
	(78RPM)	† CRA 55 or ♦ CRA 55D	† W-64S		

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	8B459	Volume
Cabinet	17B965	Model 541
Cabinet	17B949	Model 515

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

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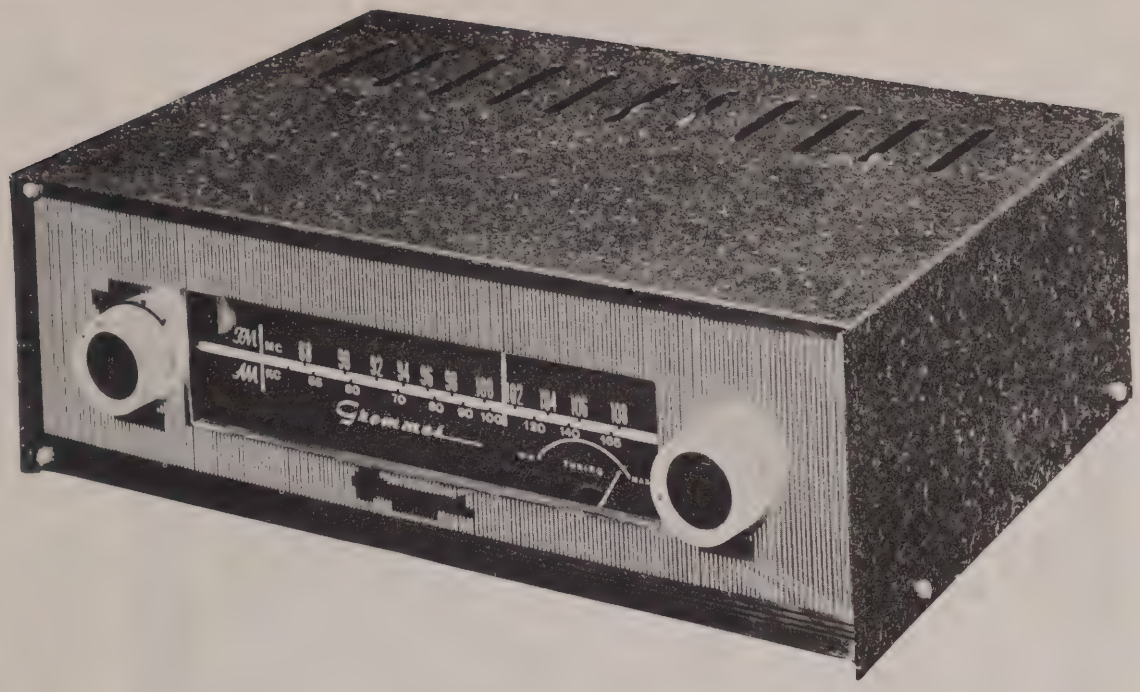
EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

GROMMES
MODEL GRT-3

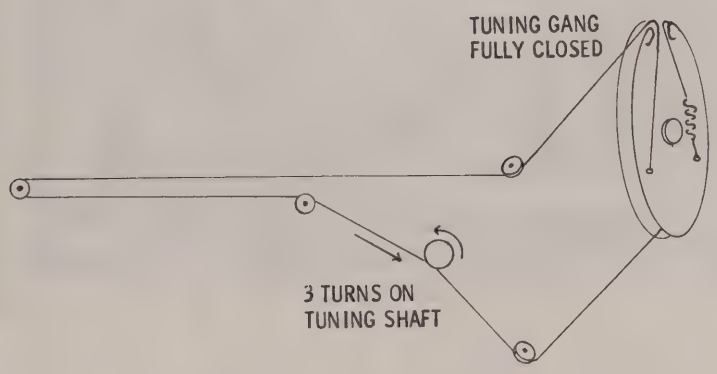
GROMMES
MODEL GRT-3



GROMMES
MODEL GRT-3

TRADE NAME	Grommes Model GRT-3	
MANUFACTURER	Precision Electronics, Inc, 9101 King Ave., Franklin Park, Illinois	
TYPE SET	AC Operated FM-AM Tuner	
TUBES	Twelve	
POWER SUPPLY	110-120 Volts AC-60 Cycles	RATING .43 Amp. @ 117 Volts AC (45 Watts)
TUNING RANGE - BROADCAST	535-1700KC	FREQ. MOD. 88-108MC

DIAL CORD STRINGING



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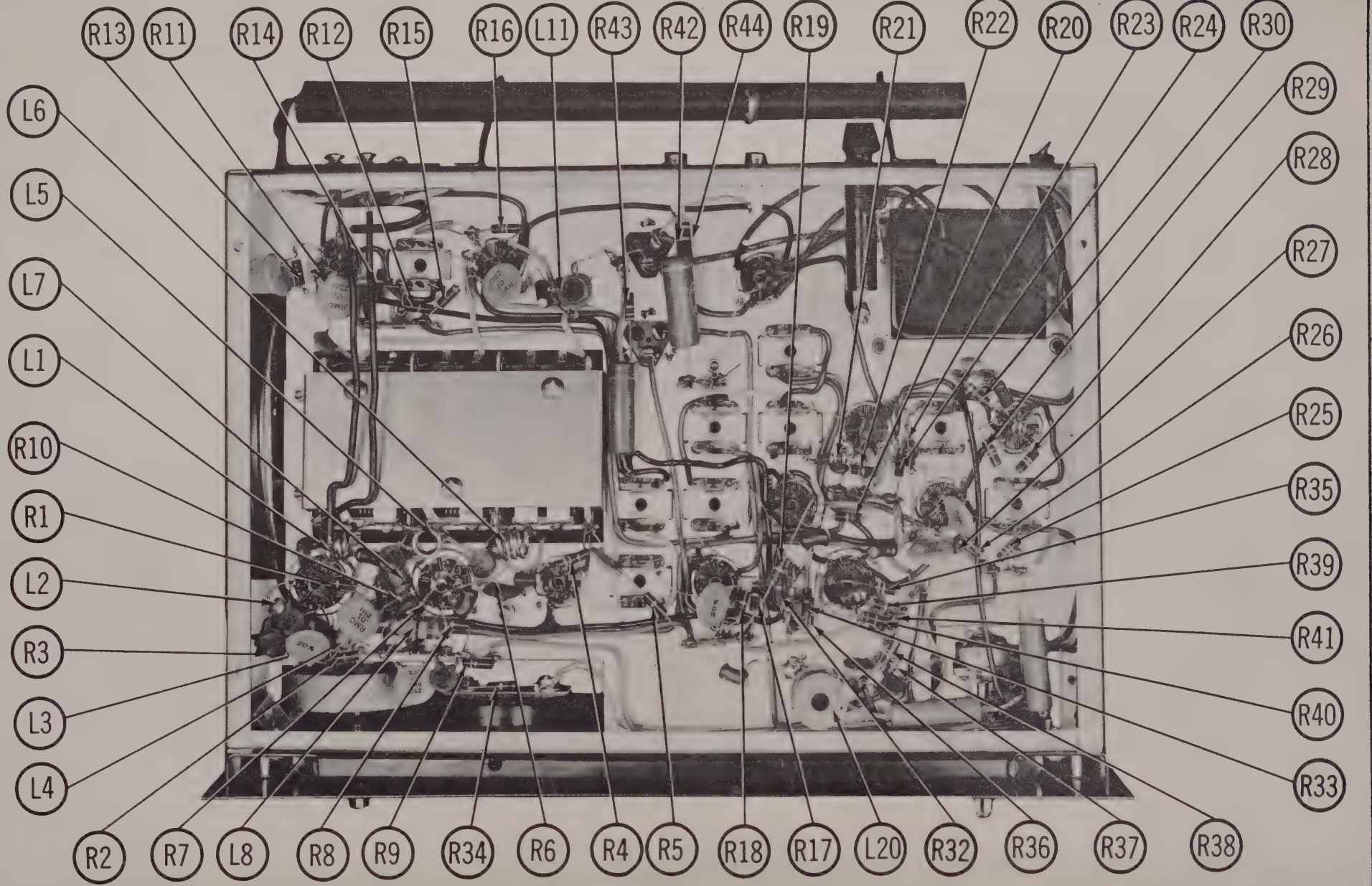
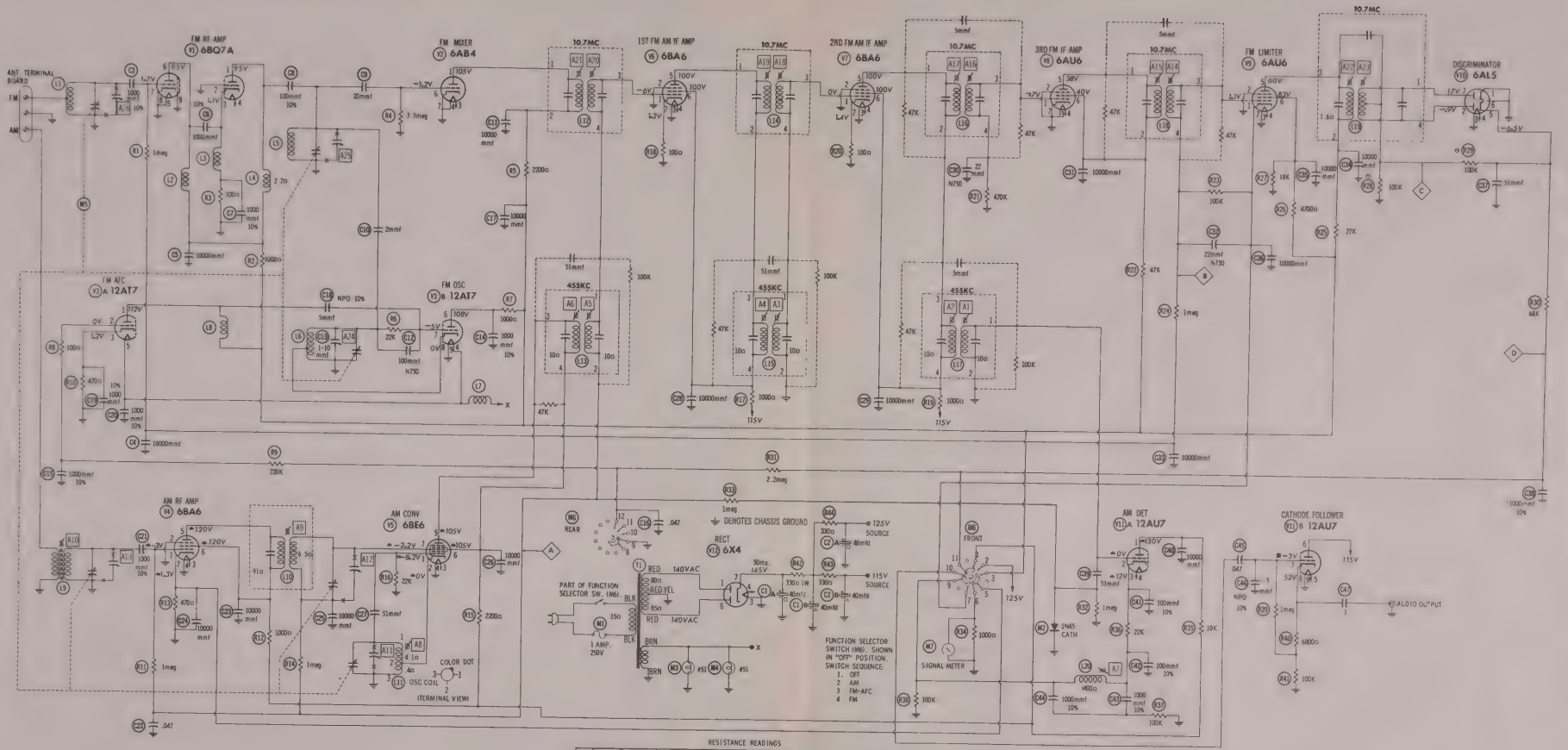
H570

SET 415 FOLDER 7



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BQ7A	†1600Ω	0Ω	100Ω	1Ω	0Ω	†1600Ω	2 1meg	0Ω	0Ω
V2	6AB4	†2800Ω	0Ω	.1Ω	0Ω	0Ω	3 3meg	0Ω		
V3	12AT7	†660Ω	220K = 2.4meg	470Ω	1Ω	.1Ω	†1600Ω	22K	0Ω	0Ω
V4	6BA6	= 2meg	0Ω	1Ω	0Ω	= †1700Ω	= †1700Ω	= 470Ω		
V5	6BE6	= 22K	.4Ω	.1Ω	0Ω	= †2800Ω	= †2800Ω	= 2meg		
V6	6BA6	1meg	0Ω	0Ω	.1Ω	†1600Ω	†1600Ω	100Ω		
V7	6BA6	1Ω	0Ω	0Ω	.1Ω	†1600Ω	†1600Ω	100Ω		
V8	6AU6	470K	0Ω	0Ω	.1Ω	†48K	†48K	0Ω		
V9	6AU6	100K	0Ω	0Ω	.1Ω	†28K	†5300Ω	280K		
V10	6AL5	0Ω	100K	0Ω	.1Ω	170K	0Ω	100K		
V11	12AU7	= †11K	10Ω	120K	.1Ω	.1Ω	= †660Ω	1.1meg	100K	0Ω
V12	6X4	80Ω	0Ω	0Ω	.1Ω	0Ω	85Ω	40K (MIN)		

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.
† MEASURED FROM PIN 7 OF V12.
= MEASURED IN "AM" POSITION.
• MEASURED FROM PIN 8 OF V11.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of +15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

⊕ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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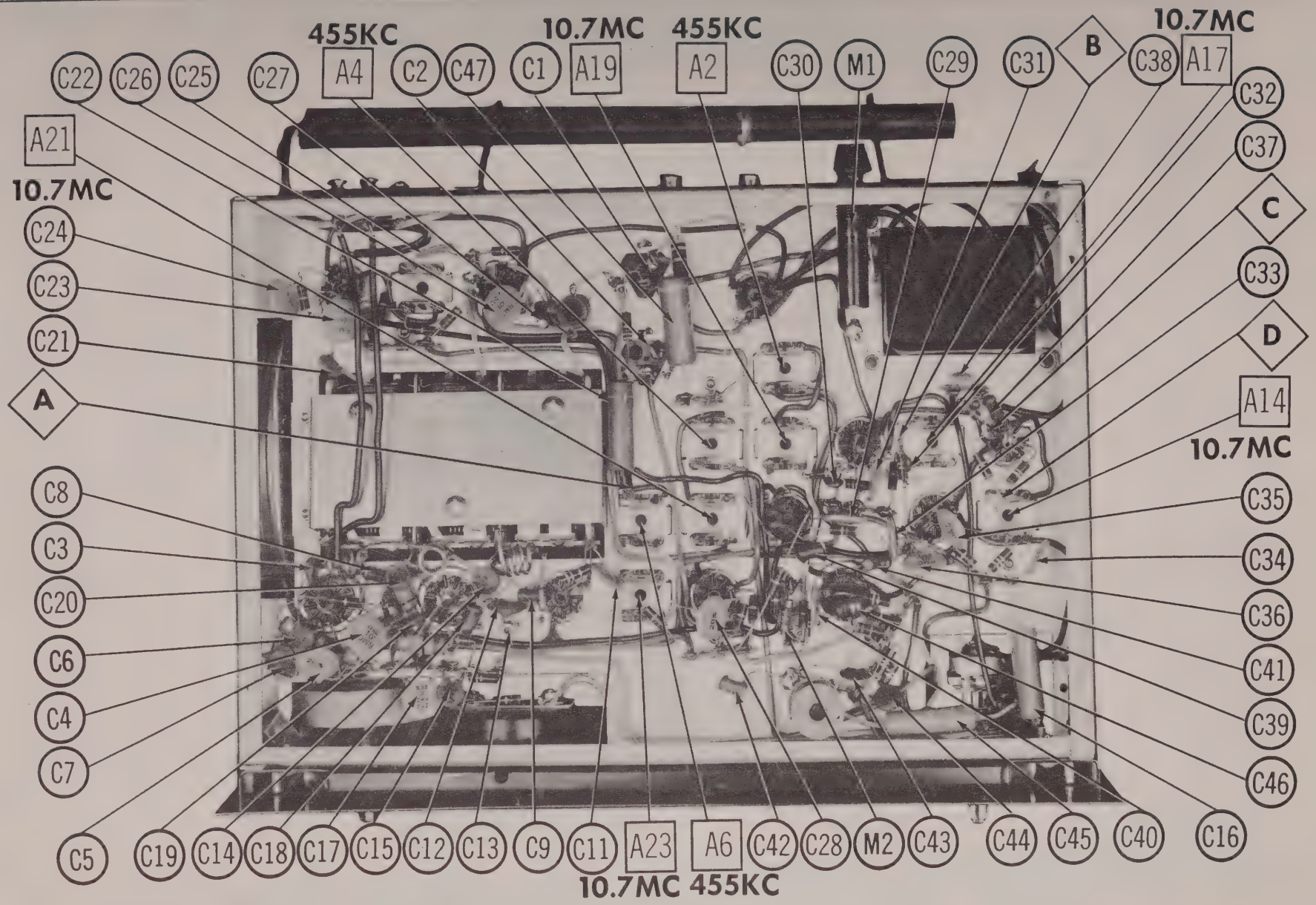
415-7



CHASSIS BOTTOM VIEW - CAPACITOR ALIGNMENT, MISC. IDENT.

GROMMES
MODEL GRT-3

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	.01mfd	High side to pin 7 (grid) of 6BE6 (V5). Low side to chassis.	455KC (400∿ Mod)	AM	Tuning gang fully open	DC probe to point Ⓐ. Common to chassis.	A1, A2, A3, A4, A5, A6	Adjust for maximum output.
2.	"	"	455KC (10KC Mod)	"	"	AC probe to audio output. Common to chassis.	A7	Adjust for MINIMUM output.
3.	"	High side to AM antenna terminal. Low side to chassis.	600KC (400∿ Mod)	"	600KC	DC probe to point Ⓐ. Common to chassis.	A8, A9, A10	Adjust for maximum output.
4.	"	"	1000KC	"	1000KC	"	A11	Adjust for maximum output. Repeat steps 3 and 4.
5.	"	"	1500KC	"	1500KC	"	A12, A13	Adjust for maximum output.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6.	.01mfd	High side to pin 6 (grid) of 6AB4 (V2). Low side to chassis.	10.7MC (Unmod)	FM	Point of non-interference	DC probe to point Ⓑ. Common to chassis.	A14, A15, A16, A17, A18, A19, A20, A21	Adjust for maximum deflection.
7.	"	"	"	"	"	DC probe thru 1meg to point Ⓒ. Common to chassis.	A22	"
8.	"	"	"	"	"	DC probe to point Ⓓ Common to chassis.	A23	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND SCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
6.	.01mfd	High side to pin 6 (grid) of 6AB4 (V2). Low side to chassis.	10.7MC (450KC Swp)	FM	Point of non-interference	Vert. Amp. to point Ⓑ. Low side to chassis.	A14, A15, A16, A17, A18, A19, A20, A21	Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
7.	"	"	"	"	"	Vert. Amp. thru 27K to point Ⓒ. Low side to chassis.	A22	Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
8.	"	"	"	"	"	Vert. Amp. to point Ⓓ. Low side to chassis.	A23	Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A22 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
9.	270Ω Carbon Resistor	High side to FM antenna terminal. Low side to chassis.	103MC	FM	103MC	DC probe to point Ⓑ. Common to chassis.	A24, A25, A26	Adjust for maximum deflection.
	If receiver fails to track properly, steps 10 and 11 should be followed.							
10.	"	"	"	"	"	"	L5, L1	Adjust for maximum deflection by compressing or expanding coil turns. Recheck A25 and A26.
11.	"	"	88MC	"	88MC	"	L6	Adjust for maximum deflection by compressing or expanding coil turns. while rocking tuning gang. Repeat steps 9, 10 and 11.

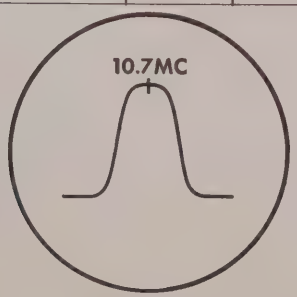


FIG. 1

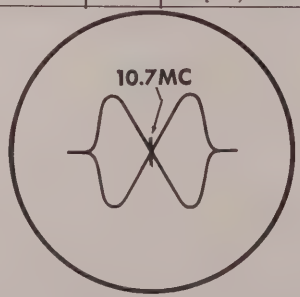
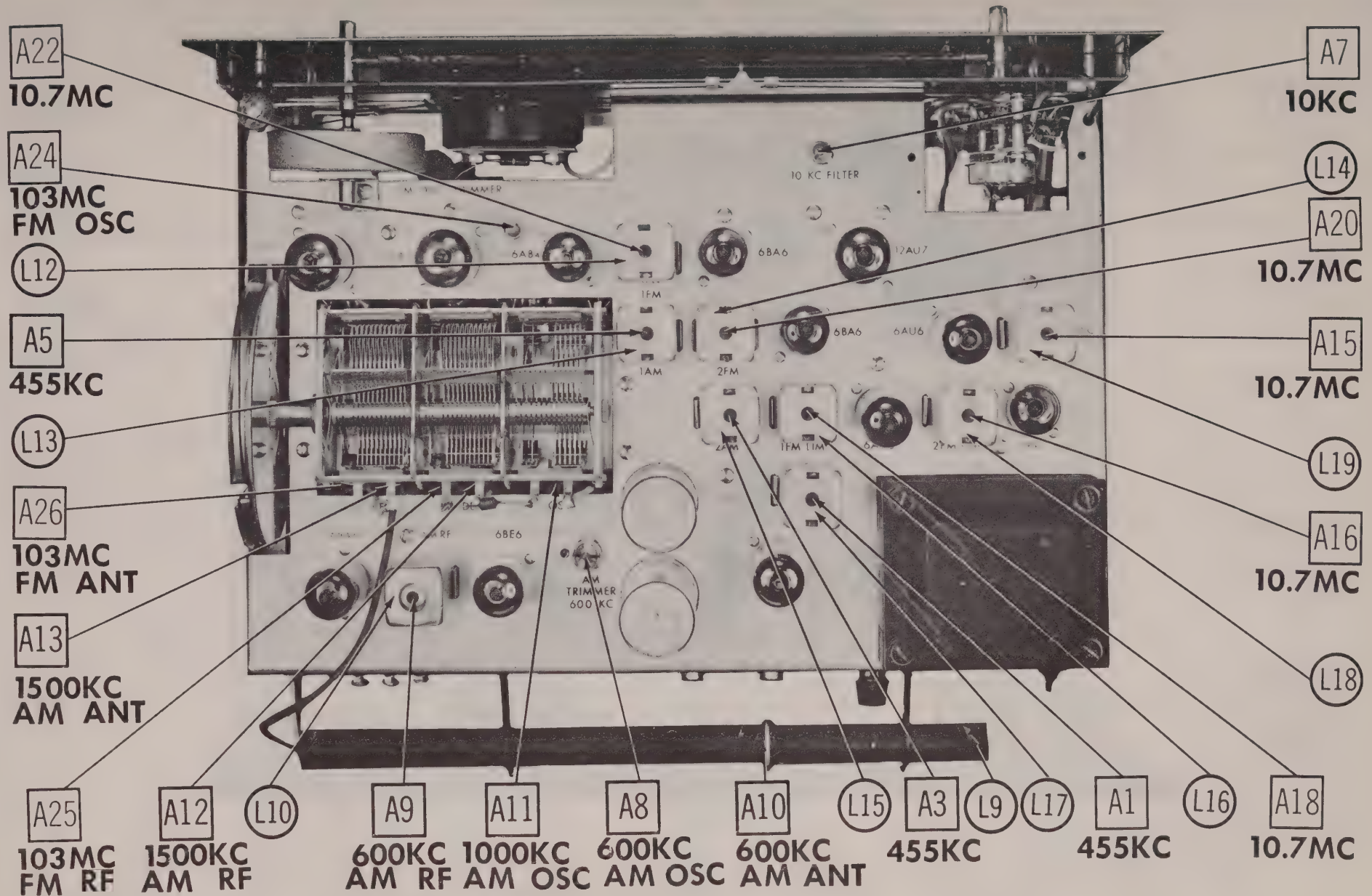


FIG. 2



CHASSIS-TOP VIEW INDUCTOR AND ALIGNMENT IDENTIFICATION

RESISTORS (cont)

ITEM No.	RATING OHMS	RATING WATT	GROMMES PART No.	NOTES
R23	100K			
R24	1meg			
R25	27K			
R26	4700Ω			
R27	18K			
R28	100K			Note 1
R29	100K			Note 1
R30	68K			
R31	2.2meg			
R32	1meg			
R33	1meg			

ITEM No.	RATING OHMS	RATING WATT	GROMMES PART No.	NOTES
R34	1000Ω			
R35	10K			
R36	22K			
R37	100K			
R38	100K			
R39	1meg			
R40	6800Ω			
R41	100K			
R42	330Ω	1		
R43	330Ω			
R44	330Ω			

Note 1. Some versions may use 68K in this application.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA GROMMES PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	FM Ant. Coil						
L2	RF Choke		19-1000	BC-561	4602		1 Microhenry ①
L3	Cathode Choke				4646		.24 Microhenry ①
L4	RF Choke						3.3 Microhenries ①
L5	FM RF Coil						
L6	FM Osc. Coil						
L7	Fil. Choke		19-1000	BC-561	4602		1 Microhenry ①
L8	RF Choke		19-1000	BC-561	4602		1 Microhenry ①
L9	Loop Stick						
L10	AM RF Trans.	55-276					
L11	AM Osc. Coil		14-1055	BC-393 ▲	70-OSC *		
L12	1st. FM IF	56-361	16-3487	FM-254	1463		
L13	1st. AM IF	56-364	16-6758	BC-352	12-C1	RF-1	
L14	2nd. FM IF	56-362	16-3487	FM-254	1463		
L15	2nd. AM IF	56-370	16-6758	BC-353	12-C2	RF-2	
L16	3rd. FM IF	56-362	16-3487	FM-254	1463		
L17	3rd. AM IF	56-365	16-6758	BC-353	12-C2	RF-2	
L18	FM Limiter	56-362	16-3487	FM-254	1463		
L19	Discriminator	56-363	17-3494	FM-253	1464		
L20	10KC Filter						

* Disregard primary. ▲ Disregard capacity winding. ① IRC Part #CLA.

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA GROMMES PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @.43A	280VCT @.055A	6.3V @4.1A	TP1-T		P-3048				

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA GROMMES PART No. FUSE	GROMMES PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	3AG	1A 250V			312001. (3AG-1A-250V)	342001	AGC 1	HKP

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA GROMMES PART No.	CBS PART No.	SYLVANIA PART No.	NOTES
M2	1N45		1N52	1N34	AVC Rect. (Pigtail) Alternate Type 1N60

MISCELLANEOUS

ITEM No.	PART NAME	GROMMES PART No.	NOTES
M3	Lamp		#51
M4	Lamp		#51
M5	Tuning Cap.		6 Gang (AM Sections: Ant. 26-529mmf, RF 28-533mmf, Osc. 26-198mmf)
M6	Switch		On-Off, Function, Rotary Wafer Type
M7	Meter		Signal

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	FM RF Amplifier	6BQ7A	
V2	FM Mixer	6AB4	
V3	FM Osc.-FM AFC	12AT7	
V4	AM RF Amplifier	6BA6	
V5	AM Converter	6BE6	
V6	1st. FM-AM IF Amp.	6BA6	

ITEM No.	USE	TYPE	NOTES
V7	2nd. FM-AM IF Amp.	6BA6	
V8	3rd. FM IF Amp.	6AU6	
V9	FM Limiter	6AU6	
V10	Discriminator	6AL5	
V11	AM Det.-Cath. Follower	12AU7	
V12	Rectifier	6X4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	GROMMES PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■40	150		AFH2-14	XB0141	FP212	TMD-11	D-060	TVL-2428
B	▲40	150							
C2A	■40	150		AFH2-14	XB0141	FP212	TMD-11	D-060	TVL-2428
B	▲40	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	GROMMES PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C3	1000								10%
C4	10000			BPD-01	DD-103	BYA10S1	DC511	5HK-S1	
C5	10000			BPD-01	DD-103	BYA10S1	DC511	5HK-S1	
C6	1000								10%
C7	1000								10%
C8	100			NPO-SI 100	D6-101	CTA6T1C	ZT-531	5TCC-T1	10%
C9	20			SI 20	D6-200	CTA6Q2C	ZT-542	5GA-Q2	
C10	2			NPO-SI 2	TCZ-2R2	CTA6V22C		5TCCB-V22	
C11	10000			BPD-01	DD-103	BYA10S1	DC511	5HK-S1	
C12	100			N750-DI 100	DTN-100	C10T1U	NT-531	5TCU-T1	N750
C13	1-10								
C14	1000								10%
C15	1000								10%
C16	.047	200		P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47	
C17	10000			BPD-01	DD-103	BYA10S1	DC511	5HK-S1	
C18	5			NPO-SI 5			ZT-555		NPO 10%
C19	1000								10%
C20	1000								10%

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

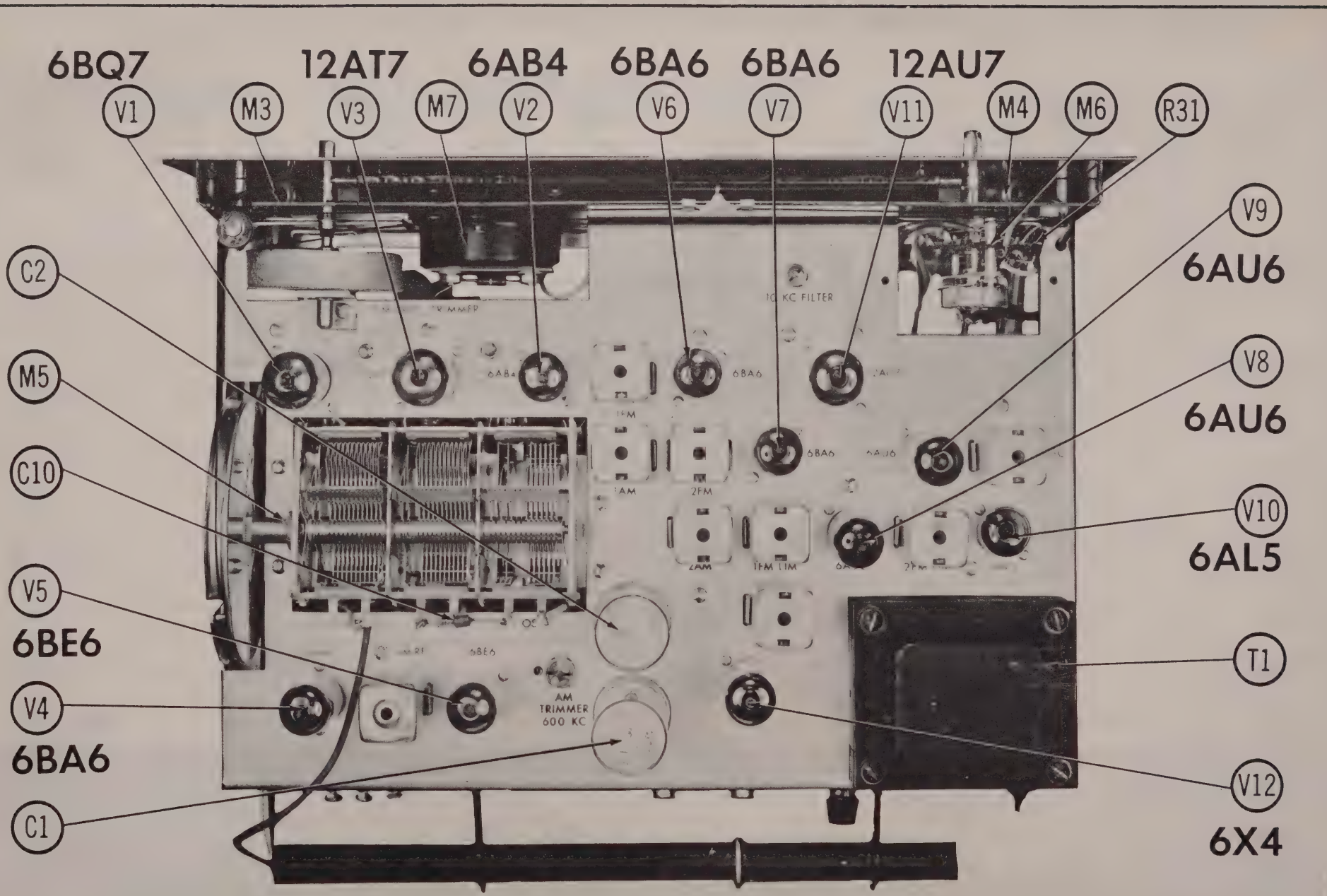
ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	GROMMES PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C21	1000								10%
C22	.047	200		P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47	
C23	10000			BPD-01	DD-103	BYA10S1	DC511	5HK-S1	
C24	10000			BPD-01	DD-103	BYA10S1	DC511	5HK-S1	
C25	10000			BPD-01	DD-103	BYA10S1	DC511	5HK-S1	
C26	10000			BPD-01	DD-103	BYA10S1	DC511	5HK-S1	
C27	51			SI 51	D6-500	LT6Q5	UC-545	5GA-Q5	
C28	10000			BPD-01	DD-103	BYA10S1	DC511	5HK-S1	
C29	10000			BPD-01	DD-103	BYA10S1	DC511	5HK-S1	
C30	22			N750-DI 22	DTN-22	C10Q22U		5TCU-Q22	N750
C31	10000			BPD-01	DD-103	BYA10S1	DC511	5HK-S1	
C32	22			N750-DI 22	DTN-22	C10Q22U		5TCU-Q22	N750
C33	10000			BPD-01	DD-103	BYA10S1	DC511	5HK-S1	
C34	10000			BPD-01	DD-103	BYA10S1	DC511	5HK-S1	
C35	10000			BPD-01	DD-103	BYA10S1	DC511	5HK-S1	
C36	10000			BPD-01	DD-103	BYA10S1	DC511	5HK-S1	
C37	51			SI 51	D6-500	LT6Q5	UC-545	5GA-Q5	
C38	1000								10%
C39	51			SI 51	D6-500	LT6Q5	UC-545	5GA-Q5	
C40	10000			BPD-01	DD-103	BYA10S1	DC511	5HK-S1	
C41	100			NPO-SI 100	D6-101	CTA6T1C	ZT-531	5TCC-T1	10%
C42	100			NPO-SI 100	D6-101	CTA6T1C	ZT-531	5TCC-T1	10%
C43	1000								10%
C44	1000								10%
C45	.047	200		P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47	
C46	5			NPO-SI 5			ZT-555		NPO 10%
C47	.1	200		P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		GROMMES PART No.	NOTES
	OHMS	WATT		
R1	1meg			
R2	1000Ω			
R3	100Ω			
R4	3.3meg			
R5	2200Ω			
R6	22K			
R7	1000Ω			
R8	100Ω			
R9	220K			
R10	470Ω			
R11	1meg			

ITEM No.	RATING		GROMMES PART No.	NOTES
	OHMS	WATT		
R12	1000Ω			
R13	470Ω			
R14	1meg			
R15	2200Ω			
R16	22K			
R17	1000Ω			
R18	100Ω			
R19	1000Ω			
R20	100Ω			
R21	470K			
R22	47K			



CHASSIS-TOP VIEW

PHOTOFACT* Folder

*TRADE MARK

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

KNIGHT MODEL KN-632 (92SZ404)

KNIGHT MODEL
KN-632 (92SZ404)

KNIGHT MODEL
KN-632 (92SZ404)

TRADE NAME	Knight Model KN-632 (92SZ404)
SUPPLIER	Allied Radio Corp., 100 N. Western Ave., Chicago 80, Illinois
TYPE SET	AC Operated 32 Watt Audio Amplifier
TUBES (Five)	Types 12AX7 AF Amplifier, 6C4 Phase Inverter, (2) 6CA7 Output, 5U4GB Rectifier
POWER SUPPLY	105-130 Volts AC-50/60 Cycles RATING 1.2 Amp. @ 117 Volts AC (125 Watts)

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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H526

PARTS LIST AND DESCRIPTIONS

KNIGHT
MODEL KN-632

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amplifier	12AX7	
V2	Phase Inverter	6C4	
V3	Output	6CA7	

ITEM No.	USE	TYPE	NOTES
V4	Output	6CA7	
V5	Rectifier	5U4GB	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	KNIGHT PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲40	450		AFH4-17	D0160	FP475.5	TMQ-17	Q-055	TVL-4771.3
B	■10	450							
C	10	450							
D	▲10	450							
C2	30	150		PRS150V30	BR3015	TC47	TD-30-150	MT-1530	TVA-1412
C3	8	450		PRS450V8	BR845	TC71	TD-8-450	MT-4508	TVA-1704

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	KNIGHT PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C4	.047	600		P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	
C5	68			N750-DI 68	DTN-68	C10Q68U		5TCU-Q68	N750 10%
C6	.047	600		P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	
C7	.047	600		P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	
C8	.047	600		P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	KNIGHT PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	100K	½	RP-104A-G	B-41	A47-100K-Z	Q13-128	U39	Gain
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R2	500Ω	½	RP-5010					Damping & Switch
R3A	50K	½	RP-353					Bias
B	10K	½						Balance

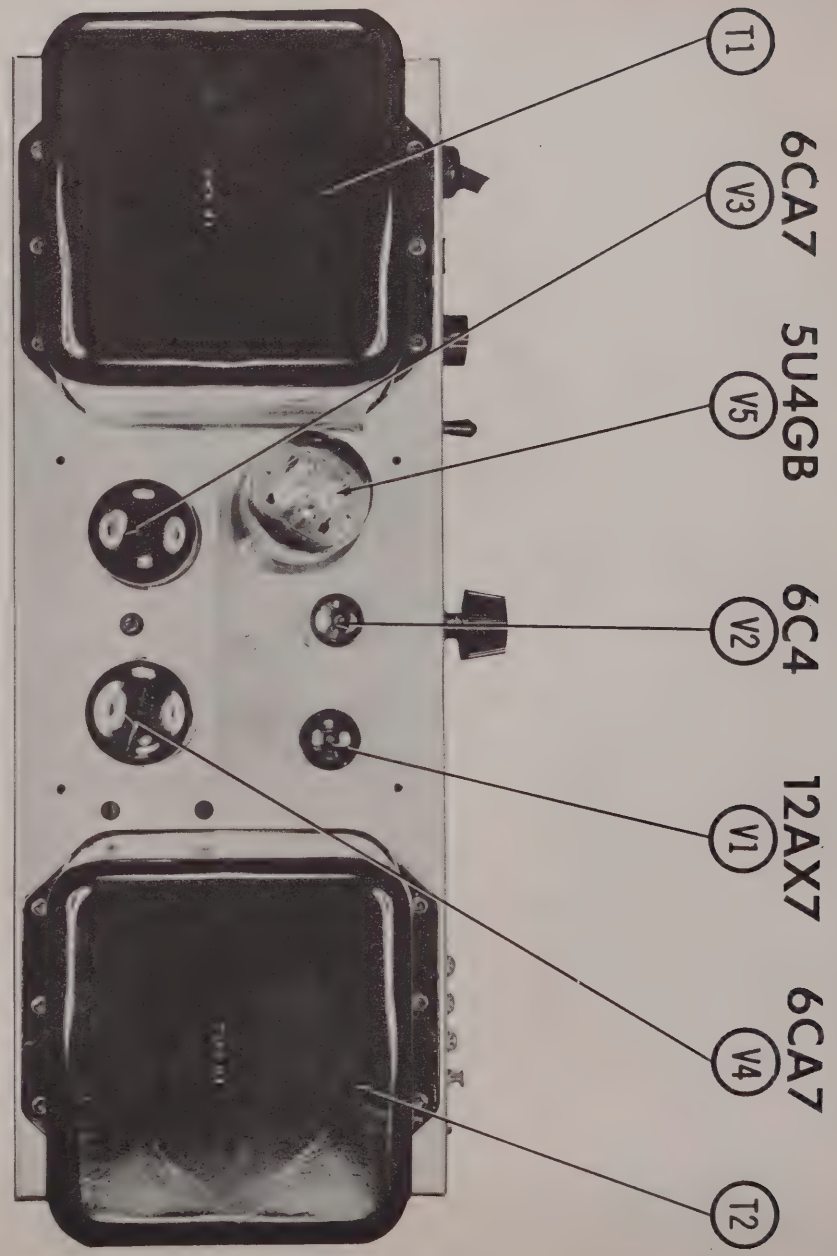
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		KNIGHT PART No.	NOTES
	OHMS	WATT		
R4	3300Ω			
R5	470K			
R6	220K			
R7	220K			
R8	470K			
R9	47K			
R10	2200Ω			
R11	47K			
R12	100K			
R13	100K			

ITEM No.	RATING		KNIGHT PART No.	NOTES
	OHMS	WATT		
R14	3000Ω 5%			
R15	300Ω 5%	1		
R16	56Ω 5%			
R17	82K			
R18	82K			
R19	68K			
R20	10K	2		
R21	22K	1		
R22	150Ω			
R23	1.5Ω	7		

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	KNIGHT PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @ 1.2A	675VCT @ .125A Tap @ 70V @ .008A	5V @ 2.5A	LP-0265						
	SEC. 3									
	6.3VCT @ 3.5A									

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	KNIGHT PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	4400Ω CT	16Ω tap @ 8Ω, 4Ω	LO-0154					25S37		

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	KNIGHT PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	
M1	.001A		1159	CR-20	10	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			KNIGHT PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	3AG	3A 125V S/B			313003. (3A-125V-S/B)	341001	MDX3	HKP

MISCELLANEOUS

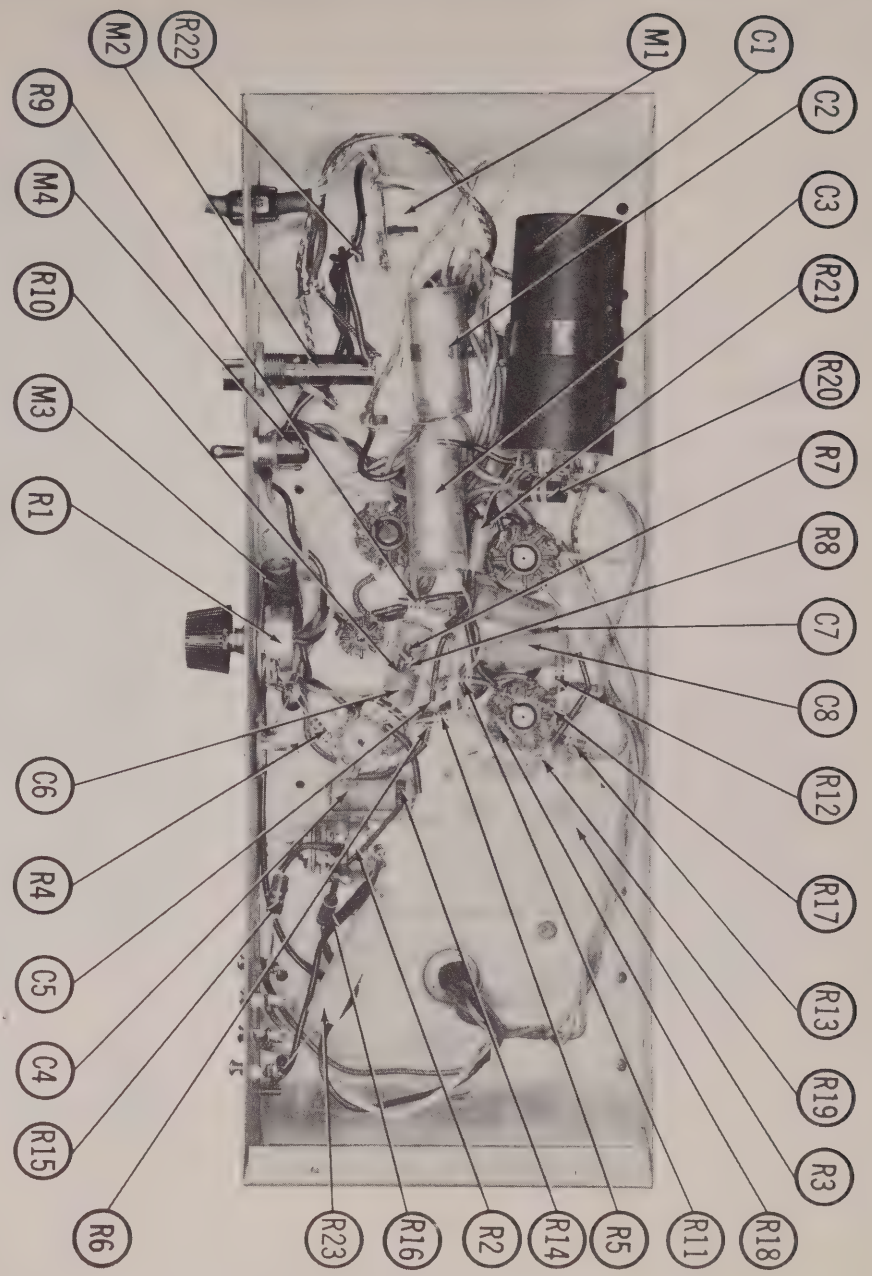
ITEM No.	PART NAME	KNIGHT PART No.	NOTES
M3	Lamp		#1847
M4	Switch		Power, Off-On, Toggle Type

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

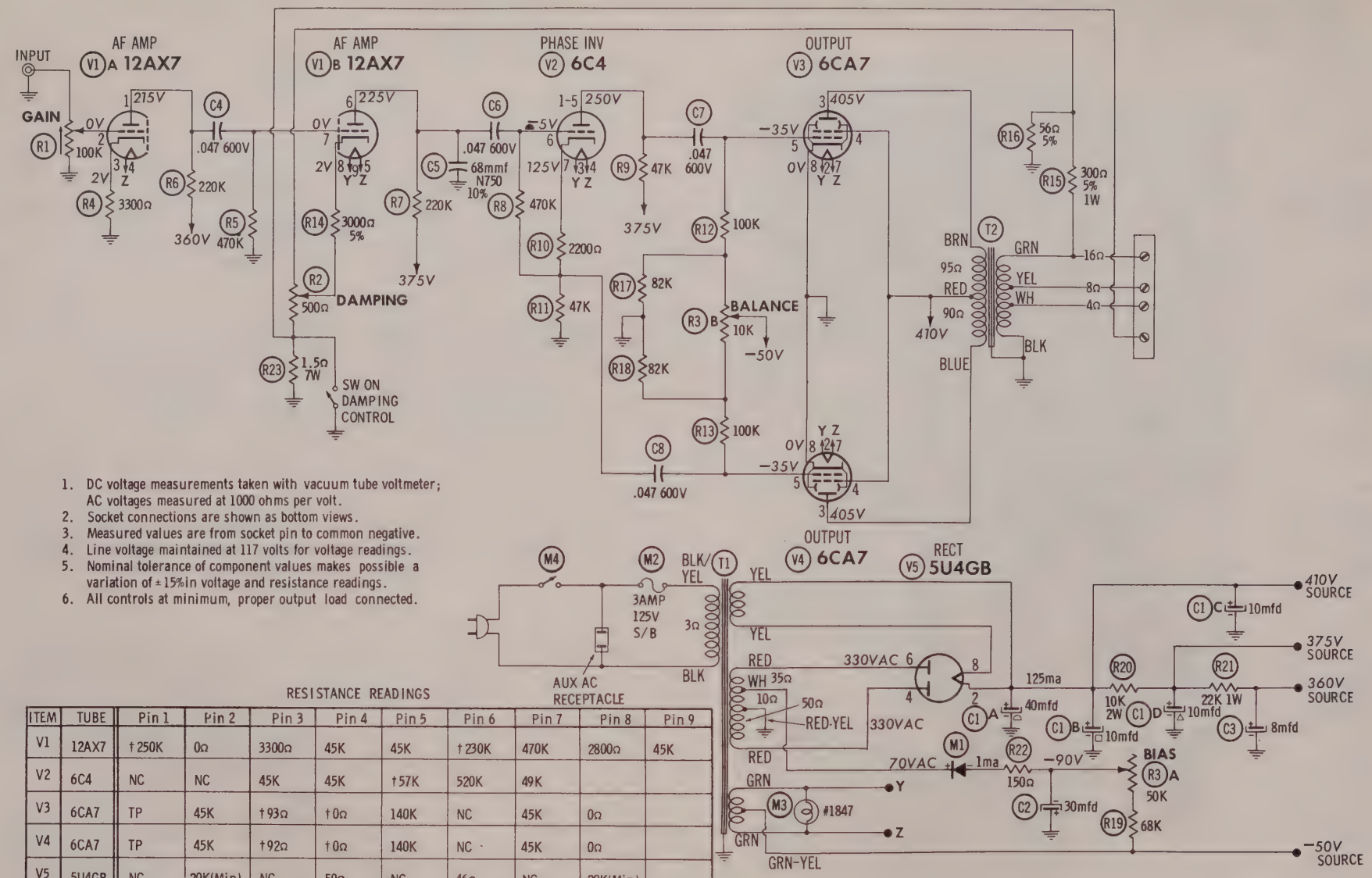
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

CHASSIS—BOTTOM VIEW



KNIGHT
MODEL KN-632

KNIGHT
MODEL KN-632



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	†250K	0Ω	3300Ω	45K	45K	†230K	470K	2800Ω	45K
V2	6C4	NC	NC	45K	45K	†57K	520K	49K		
V3	6CA7	TP	45K	†93Ω	†0Ω	140K	NC	45K	0Ω	
V4	6CA7	TP	45K	†92Ω	†0Ω	140K	NC	45K	0Ω	
V5	5U4GB	NC	20K(Min)	NC	50Ω	NC	46Ω	NC	20K(Min)	

† MEASURED FROM PIN 2 OF V5.
• MEASURED FROM PIN 7 OF V2.
NC NO CONNECTION
TP TIE POINT

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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PHOTOFACT* Folder

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

MAGNAVOX
CHASSIS AMP-168AA

MAGNAVOX
CHASSIS AMP-168AA

MAGNAVOX
CHASSIS AMP-168AA

TRADE NAME	Magnavox Chassis Amp-168AA
MANUFACTURER	Magnavox Co., 2131 Bueter Road, Fort Wayne 4, Indiana.
TYPE SET	AC Operated Phono Amplifier with 4 Speed Automatic Record Changer
TUBES (Four)	Types 12AX7 AF Amp.-Phase Inv., (2) 35C5 Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycle RATING .32 Amp. @117 Volts AC (30 Watts)

FOR SERVICE INFORMATION ON RECORD CHANGER—SEE SIMILAR V-M 1200A— PHOTOFACT SET 353 FOLDER 16 OR RECORD CHANGER MANUAL RC-10

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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H562

PARTS LIST AND DESCRIPTIONS

MAGNAVOX
CHASSIS AMP-168AA

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amp. -Phase Inv.	12AX7	
V2	Output	35C5	
V3	Output	35C5	
V4	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	MAGNAVOX PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■40	150	270023-24	AFH3-10	C0090	FP311.5	TMT-9	T-040	R2312 *
B	▲40	150							
C	20	150							

* Non-Catalog Item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	MAGNAVOX PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	10000		250175-2	BPD-01	DD-103	BYA10D1	DC511	5HK-S1	Note 1.
C3	33		250187-47	1468-000033	DD-330	5W5Q33	UC-5433	1FM-433	
C4	1500		250218-18	BPD-0015	DD-152	BYA10D15	DC5215	5HK-D15	
C5	2000		250218-20	BPD-002	DD-202	BYA10D2	DC522	5HK-D2	
C6	10000		250175-2	BPD-01	DD-103	BYA10S1	DC511	5HK-S1	
C7	.068	200	250202-12	P288N-068		CUB4S68	GEM-4168	4TM-S68	
C8	.068	200	250202-12	P288N-068		CUB4S68	GEM-4168	4TM-S68	
C9	10000		250175-2	BPD-01	DD-103	BYA10S1	DC511	5HK-S1	
C10	10000		250175-2	BPD-01	DD-103	BYA10S1	DC511	5HK-S1	
C11	2.0	50							Note 2.
C12	.047	600	250201-11	P688N-047	DF-503	CUB6S47	GEM-6147	6TMS47	
C13	.047	600	250201-11	P688N-047	DF-503	CUB6S47	GEM-6147	6TMS47	

Note 1. Not used in some versions.
Note 2. Value may vary. Replace with original value.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	MAGNAVOX PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	3.3meg	½	220131-11				UDT305	Loudness, Tap@350K & 1.5meg
R2A	3meg	½	220072-31	B-85	A47-3meg-Z	Q13-140	U57	Bass
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R3A	1meg	½	220072-32	B-70	A47-1meg-Z	Q13-137	U53	Treble
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	

RESISTORS

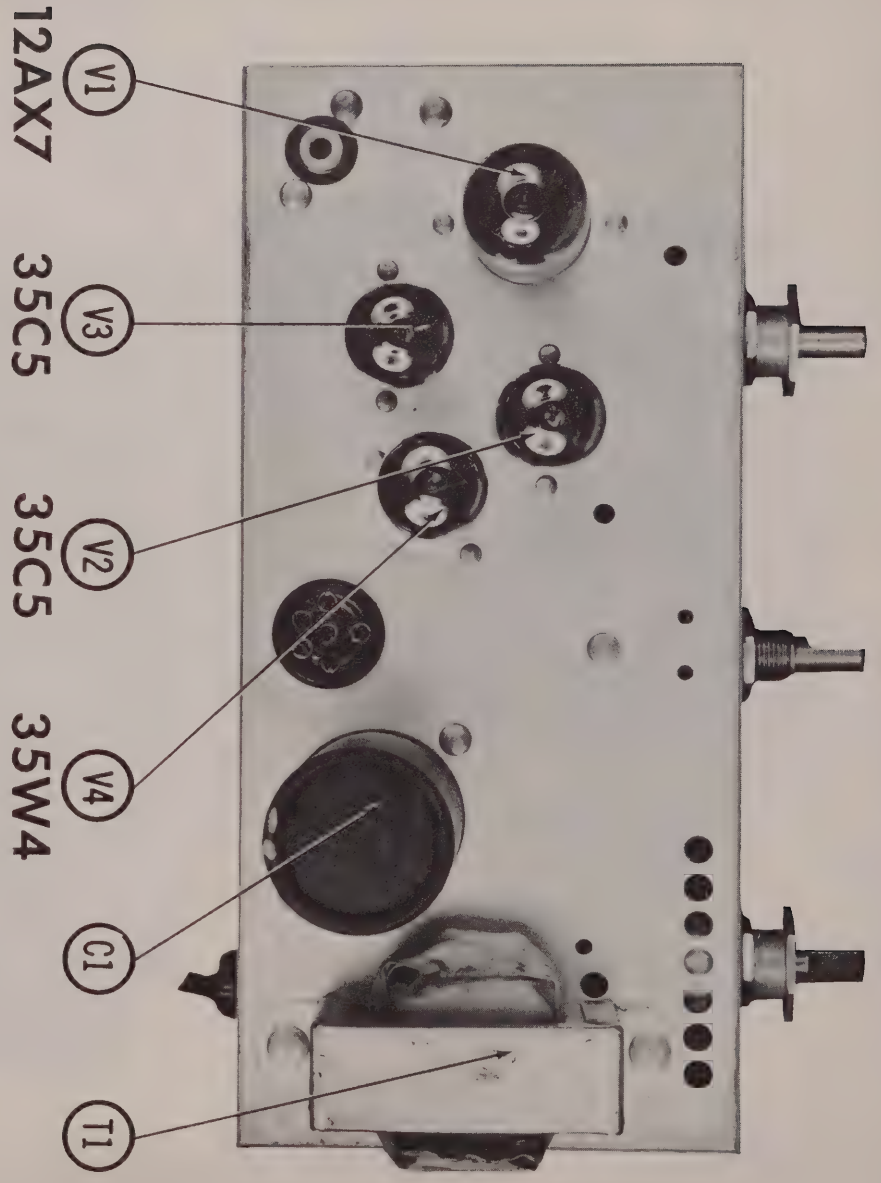
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	MAGNAVOX PART No.	NOTES
R4	330K		230104-92	
R5	47K		230104-82	
R6	220K		230104-90	
R7	470Ω		230104-58	
R8	68K		230104-84	
R9	33K		230104-80	Note 1.
R10	6800Ω		230104-72	
R11	12K		230104-75	
R12	220K		230104-90	

ITEM No.	RATING OHMS	RATING WATT	MAGNAVOX PART No.	NOTES
R13	470Ω		230104-58	
R14	68K		230104-84	
R15	470K		230104-94	
R16	33K		230104-80	
R17	100Ω	1	230105-50	
R18	470K		230104-94	
R19	6800Ω		230104-72	
R20	1500Ω		230104-64	
R21	33Ω		230104-44	

Note 1. Some versions may use 3300Ω in this application (Part #230104-68)

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.1	MAGNAVOX PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	3750Ω	3-4Ω	320265-1							
	TURNS RATIO									
		SEC 2.								
	15	:1								

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	MAGNAVOX PART No.	QUAM PART No.	
SP1	8"	PM	3-4Ω	583818	8A31	
SP2	5"	PM	3-4Ω	580038-1	5A07	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	MAGNAVOX PART No.	ASTATIC PART No.		JENSEN PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	MOUNT	
M1		81-TBX				

PHONO NEEDLE

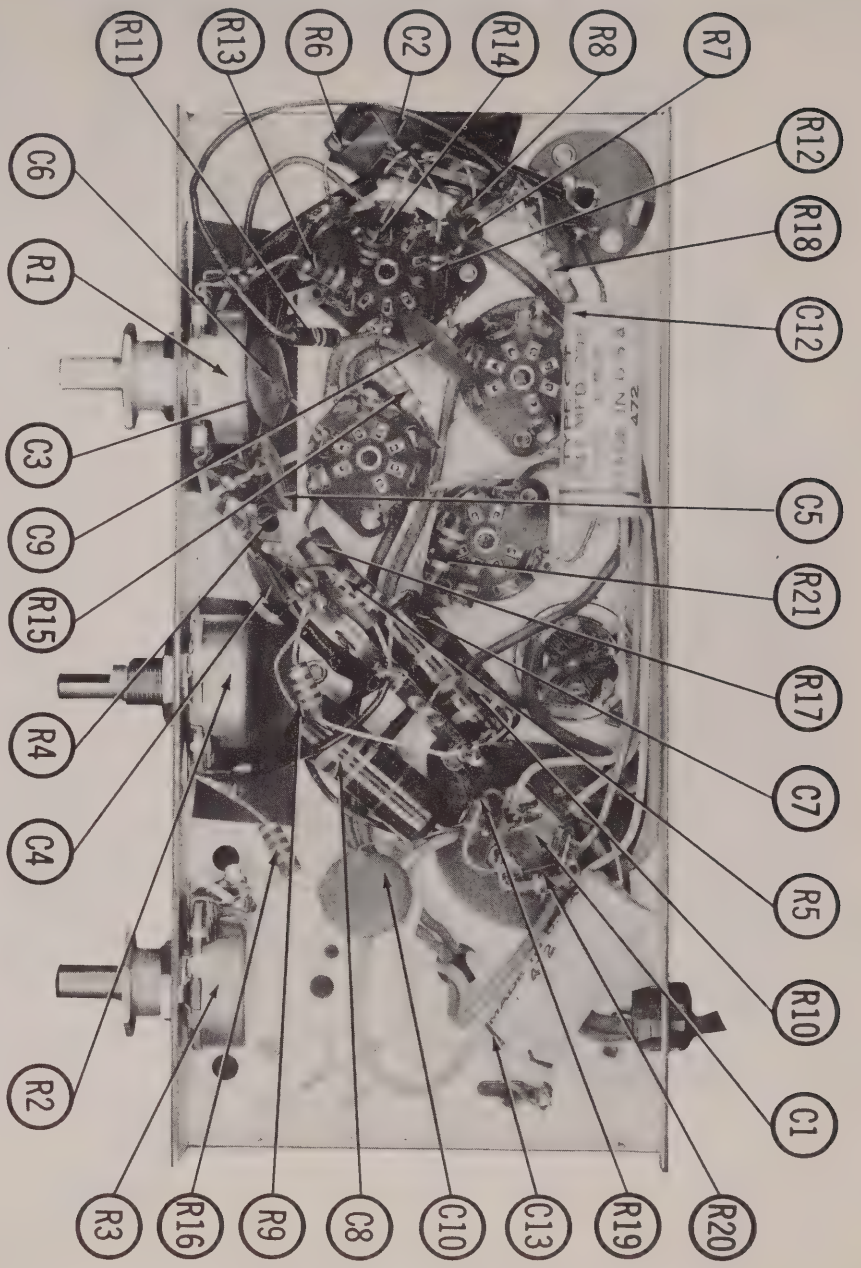
(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

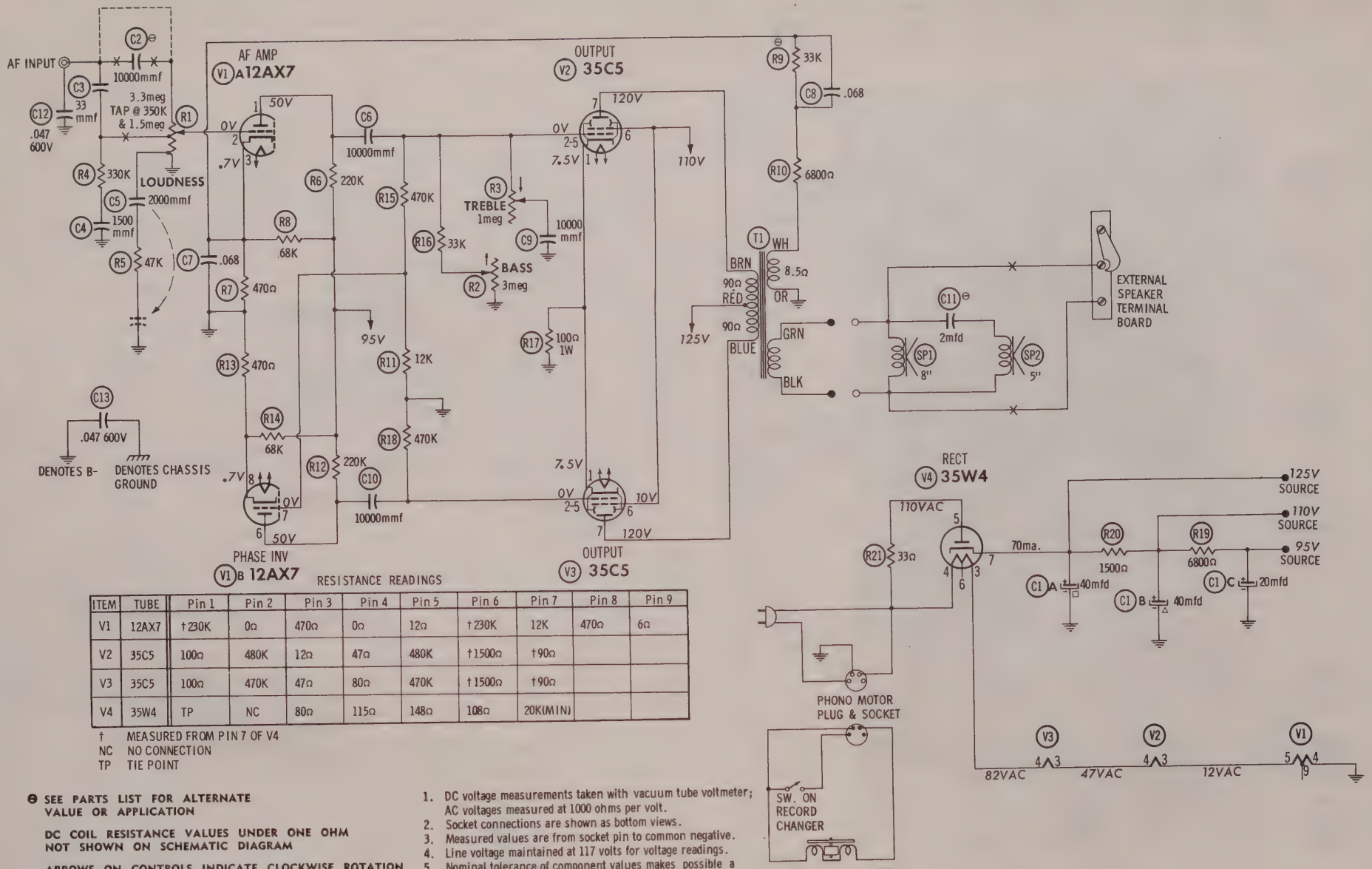
ITEM No.	REPLACEMENT DATA			REMARKS
	MAGNAVOX PART No.	JENSEN PART No.	WALCO PART No.	
M2		* JP-35 or † JPS-35 or ♦ JPS-35D	* W-35TPA or † W-35TPS or †♦ W-35DS or ♦ W-35TPD	* Metal † Jewel ♦ Diamond

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

CHASSIS—BOTTOM VIEW





RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	†230K	0Ω	470Ω	0Ω	12Ω	†230K	12K	470Ω	6Ω
V2	35C5	100Ω	480K	12Ω	47Ω	480K	†1500Ω	†90Ω		
V3	35C5	100Ω	470K	47Ω	80Ω	470K	†1500Ω	†90Ω		
V4	35W4	TP	NC	80Ω	115Ω	148Ω	108Ω	20K(MIN)		

† MEASURED FROM PIN 7 OF V4
NC NO CONNECTION
TP TIE POINT

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15%in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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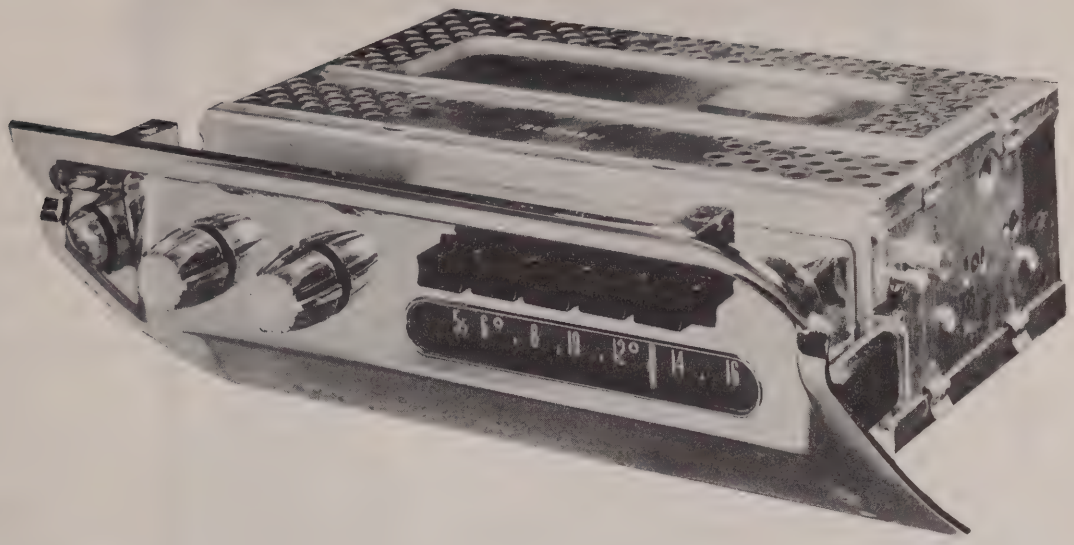
MOPAR
MODEL 854



TRADE NAME	Mopar Model 854 (For 1958 LP1, LP2 Plymouth Automobiles)
MANUFACTURER	Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Illinois
TYPE SET	Battery Operated Custom Built AM Automobile Receiver with Transistorized Output
TUBES (Four)	Types 12BL6 RF Amplifier, 12AD6 Converter, 12BL6 IF Amplifier, 12DL8 Det. - AVC-AF Amp.
POWER SUPPLY	12 Volt Storage Battery — RATING 1.4 Amp. @ 12.6 Volts DC
TUNING RANGE—BROADCAST	535-1605KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Set tone control to treble.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1mfd	High side to pin 7 (grid) of 12AD6 (V2) Low side to chassis.	262.5KC (400~ Mod.)	High frequency end stop.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	Fig. 1	Thru Dummy to antenna receptacle.	1610KC	"	"	A5, A6	"
3.	"	"	1400KC	Tune to 1400KC signal.	"	A7	"

Steps 4 & 5 are not necessary unless tuner has been tampered with or associated components have been replaced. Back tuning cores (A8, A9, A10) 1 3/8" out of coils. Alignment tool, Motorola Part #66A76278, may be used.

4.	Fig. 1	Thru Dummy to antenna receptacle.	1610KC	High end stop	Across voice coil.	A5, A6, A7	Adjust for maximum output.
5.	"	"	1020KC	Tuner carriage 49/64" in from high end stop.	"	A8, A9, A10	Adjust for maximum output. Repeat Steps 4 & 5. Step 4 should be the last step. Cement cores.

With radio installed in car and antenna fully extended, tune in a weak station near 1400KC and adjust A7 for maximum output.

POINTER ADJUSTMENT

With radio tuned to a 1000KC signal, adjust pointer adjustment so that pointer coincides with 1000KC mark on dial.

PUSHBUTTON ADJUSTMENT

1. Pull button out.
2. Tune manually to desired station.
3. Press button in firmly.
4. Repeat for remaining buttons.

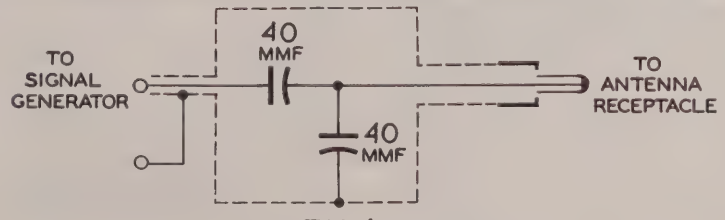


FIG. 1.

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H575

MOPAR MODEL 854
MOPAR MODEL 854
SET 415 FOLDER 10

PARTS LIST AND DESCRIPTIONS

MOPAR MODEL 854

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	12BL6	
V2	Converter	12AD6	
V3	IF Amplifier	12BL6	
V4	Det. -AVC-AF Amp.	12DL8	

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				NOTES
			CBS PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2N176	Output	CBS-2N155	2N176		2N176	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■400	16	23B542329	AFH3-00-90		WP300.5			R2634*
B	▲100	16							
C	100	16							

* Non-Catalog Item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	18-115		20K542026						
C3	.1	200	8R121573	P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	
C4A	50-260		20K560255						
B	47								
C	120-210								
C5	12		21R121462						N150
C6	100		21R124032						N220
C7	10000		21R121946	BPD-01	DD-103	BYA6S1	DC511	5HK-S1	
C8	100		21R400537	N750-DI 100	DTN-100	C10T1U	NT-531	5TCU-T1	N750
C9	100		21R400537	N750-DI 100	DTN-100	C10T1U	NT-531	5TCU-T1	N750
C10	3300		21R120422	BPD-0033	DD-332	BYA10D33	UC-5233	5HK-D33	
C11	10000		21R121946	BPD-01	DD-103	BYA6S1	DC511	5HK-S1	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1.3meg	½	18B560415		A47F5-1meg *	Q19-137X †		Volume, Tap @ 650K
B	Switch				SWE-13	76-1		Power On-Off
R2	210Ω	1.5(WW	18K540718		39-200			Transistor Bias

* Use shaft RS-3/16
† Use shaft NQ

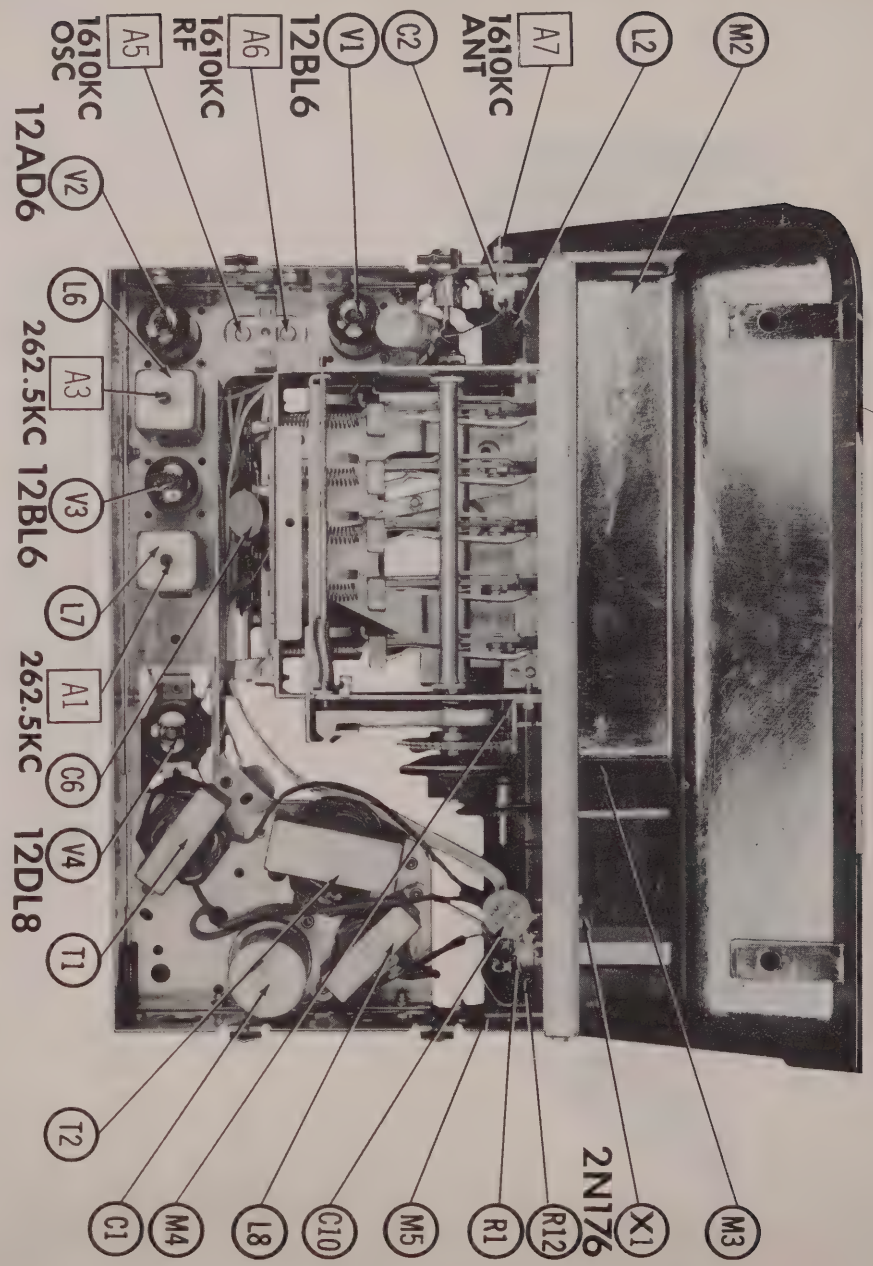
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		MOTOROLA PART No.	NOTES
	OHMS	WATT		
R3	3.3meg		6K119407	
R4	1000Ω		6R6301	
R5	22meg		6R118247	
R6	1.5meg		6R3966	
R7	1.5meg		6R3966	
R8	3.3meg		6K119407	
R9	33K		6K121704	
R10	12meg		6R400334	

ITEM No.	RATING		MOTOROLA PART No.	NOTES
	OHMS	WATT		
R11	47K		6K121687	
R12	100K		6K125534	
R13	10meg		6K119408	
R14	33Ω		6K121304	
R15	5.6Ω		17K739323	
R16	.47Ω		17K488266	
R17	10Ω Cold		6K540634	
R18	100Ω		6K119402	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					
		MOTOROLA PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	Ant. Coil	24C536308					Note 1.
L2	RF Choke	24K539955					Includes 27mmf Cap.
L3	IF Trap Coil	24K539616	19-3125	TV-195			133 microhenries
L4	RF Coil	24C536308					Note 1.
L5	Osc. Coil	24B536300					Note 1.
L6	Input IF	24K560418	16-6752	BC-350	12-H1	RF-3	
L7	Output	24B542371					

Note 1. Part of M4

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA						
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000 ~)	MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L8	1.4A	.2Ω	.004HY	25K560752						

TRANSFORMER (INTERSTAGE)

ITEM No.	TURNS RATIO		REPLACEMENT DATA							NOTES
	PRI.	SEC.	MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	6.4	:1	25K542376							

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE	REPLACEMENT DATA							NOTES
	PRI.	MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	33.5Ω Tap ⓐ 3-4Ω	25C542105							

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	MOTOROLA PART No.	QUAM PART No.	
SP1	5" x 7"	PM	3-4Ω	50D540184		

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			MOTOROLA PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	7AG	7½A 32V	65R122346	9C540493	30707.5 (7½A 32V)	155009	SFE7½	HDH

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M2	Lamp	65R10867	#44
M3	Lamp	65R10867	#44 Not used in some versions.
M4	Tuner	77E560180	(AT-224) Complete
M5	Spark Plate	48K539953	Selenium Type (Use #43A539954 Bushing, #5K124848 Eyelet, #4A542137 Cup Washer for Mounting)

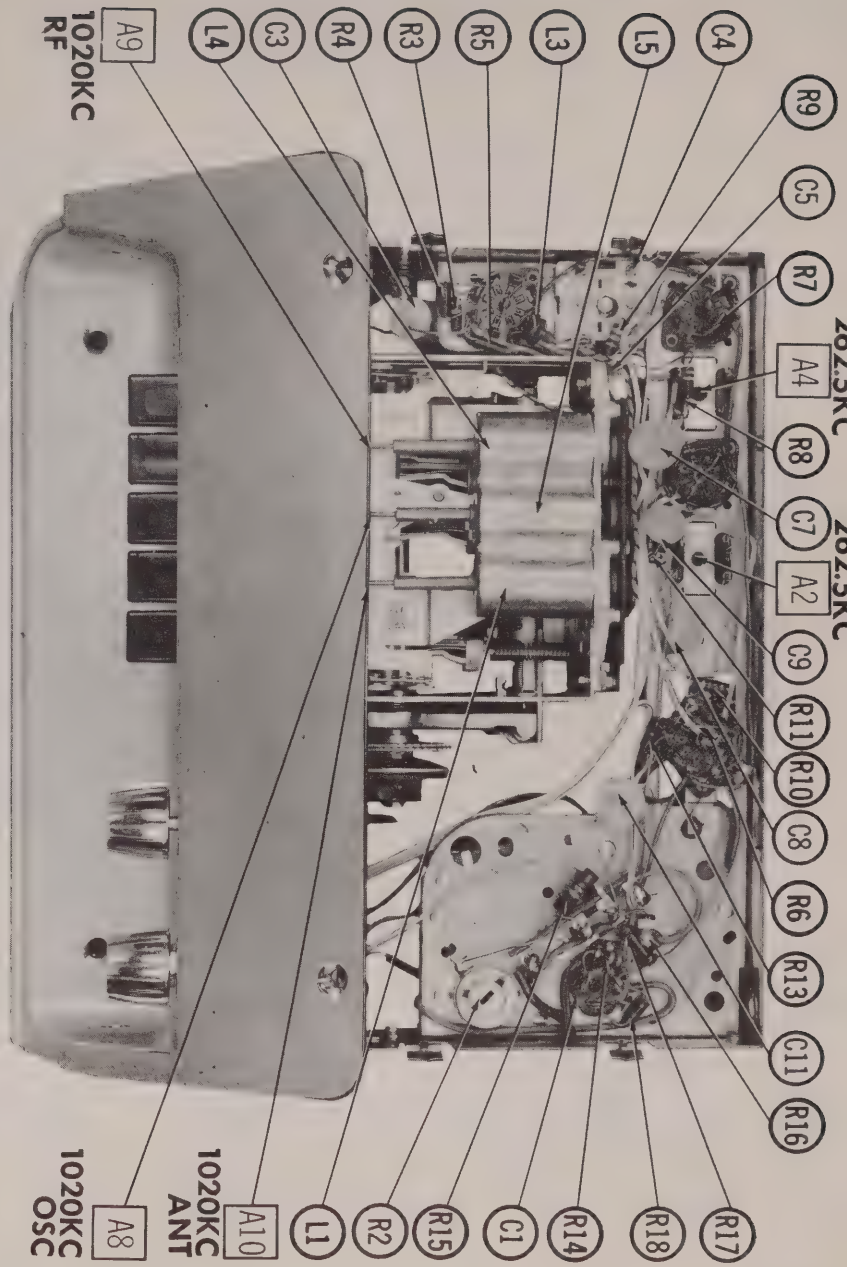
CABINETS & CABINET PARTS

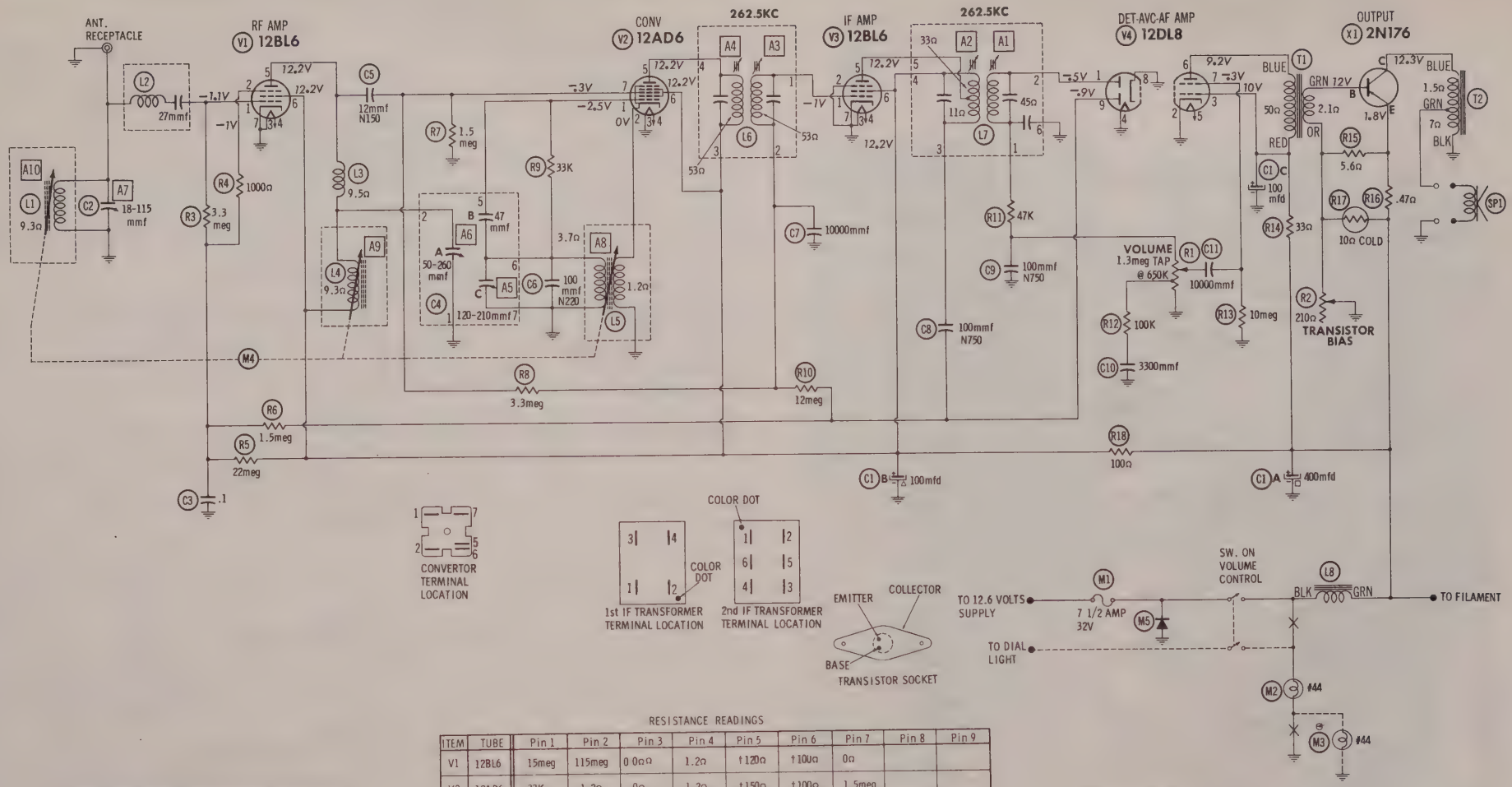
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

WIRING DATA

General-use Shielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Shielded Hook-up Wire ..... Use BELDEN No. 8885
Bonding Strap ..... Use BELDEN No. 8661

CHASSIS—BOTTOM VIEW





RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12BL6	15meg	115meg	0 0Ωn	1.2Ω	†120Ω	†100Ω	0Ω		
V2	12AD6	33K	1.2Ω	0Ω	1.2Ω	†150Ω	†100Ω	1.5meg		
V3	12BL6	4.8meg	0Ω	0Ω	1.2Ω	†130Ω	†100Ω	0Ω		
V4	12DL8	1.3meg	0Ω	†33Ω	0Ω	1.2Ω	†83Ω	10meg	0Ω	15meg

TRANSISTOR CIRCUIT RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.
† MEASURED FROM POSITIVE TERMINAL OF C1A

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 12.6 volts for voltage readings.
5. Nominal tolerance on component values makes posssible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

TRANSISTOR BIAS ADJUSTMENT (R2)

1. Set R2 for maximum resistance
2. Connect a low range DC VTVM from transistor collector to chassis.
3. Allow radio to warm up for 15 minutes.
4. Adjust R2 for a meter reading of .85 volts DC. This is equivalent to a collector current of 425MA.
5. Repeat approximately 30 minutes later.

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MOTOROLA MODELS 3H24B-1, -2, 3H24S-1, -2, 3H25B, -1, 3H25M, -1 (Ch. HS-601, HS-602)

MOTOROLA MODELS 3H24B-1, -2, 3H24S-1, -2, 3H25B, -1, 3H25M, -1 (Ch. HS-601, HS-602)

MODEL 3H24S1

MOTOROLA MODELS 3H24B-1, -2, 3H24S-1, -2, 3H25B, -1, 3H25M, -1 (Ch. HS-601, HS-602)

TRADE NAME	Motorola Models 3H24B-1, 3H24B-2, 3H24S-1 (Ch. HS-601); 3H24S-2, 3H25B, 3H25B-1, 3H25M, 3H25M-1 (Ch. HS-602)
MANUFACTURER	Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Illinois
TYPE SET	AC Operated Phono Amplifier with 4 Speed Automatic Record Changer
TUBES (Three)	Types 12AX7 AF Amplifier, 6V6GT Output, 6X4 Rectifier
POWER SUPPLY	110-120 Volts AC- 60 Cycle RATING .31 Amp. @117 Volts AC (33 Watts)

FOR SERVICE INFORMATION ON BR3RC RECORD CHANGER USED IN 3H24-1 AND 3H25 SERIES— SEE SIMILAR MONARCH UA8— PHOTOFACT SET 381 FOLDER 11.

FOR SERVICE INFORMATION ON VM15RC RECORD CHANGER USED IN 3H24-2 AND 3H25-1 SERIES— SEE SIMILAR V-M 1200A— PHOTOFACT SET 353 FOLDER 16 OR RECORD CHANGER MANUAL RC-10.

SET 415 FOLDER 11

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H512

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amplifier	12AX7	
V2	Output	6V6GT	

ITEM No.	USE	TYPE	NOTES
V3	Rectifier	6X4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	Motorola PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲40	350	23B638559	AFH3-44	C0350	FP377	TMT-40	T-108	TVL-3787
B	■40	350							
C	▲40	350							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	Motorola PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	.01	400	8R121002	P488N-01	D6-103	CUB4S1	GEM-411	4TM-S1	①
C3	100		21R410036	N750-D1100	DTN-100	C10T1U	NT-531	5TCU-T1	N750②
C4	2000		21K121836			1R5D2		MS-22	10% ③
C5	2000		21K121836			1R5D2		MS-22	10%
C6	.02	400	8R121770	P488N-02	DD-203	CUB4S2	GEM-412	4TM-S2	④
C7	.02	400	8R121770	P488N-02	DD-203	CUB4S2	GEM-412	4TM-S2	⑤

①Early versions use .02mfd 400V in this application (Part #8R121770)
②Early versions and late HS-602 chassis use 220mmf in this application (Part # 21K121698)
③Early versions use 10000mmf in this application (Part # 21R121946)
④Early versions use .03mfd 400V in this application (Part #8R122275)
⑤Early versions use .05mfd 400V in this application (Part #8R121567)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Motorola PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	2meg	½	18A638447	B-76	A47-2meg-Z	Q11-139	U55	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R2A	2meg	½	18A638447	B-76	A47-2meg-Z	Q11-139	U55	Treble
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R3A	2meg	½	18A638447	B-76	A47-2meg-Z	Q11-139	U55	Bass
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		Motorola PART No.	NOTES
	OHMS	WATT		
R4	220K		6K122322	①
R5	220K		6K122322	
R6	1800Ω		6K122445	
R7	47K		6K121299	②
R8	100K		6K125534	③
R9	10K		6K119932	④

ITEM No.	RATING		Motorola PART No.	NOTES
	OHMS	WATT		
R10	470K		6K121279	
R11	4700Ω		6K121847	
R12	470K		6K121279	
R13	330Ω	2	6R488037	⑤
R14	470Ω	2	6K125146	
R15	8200Ω		6K119931	⑥

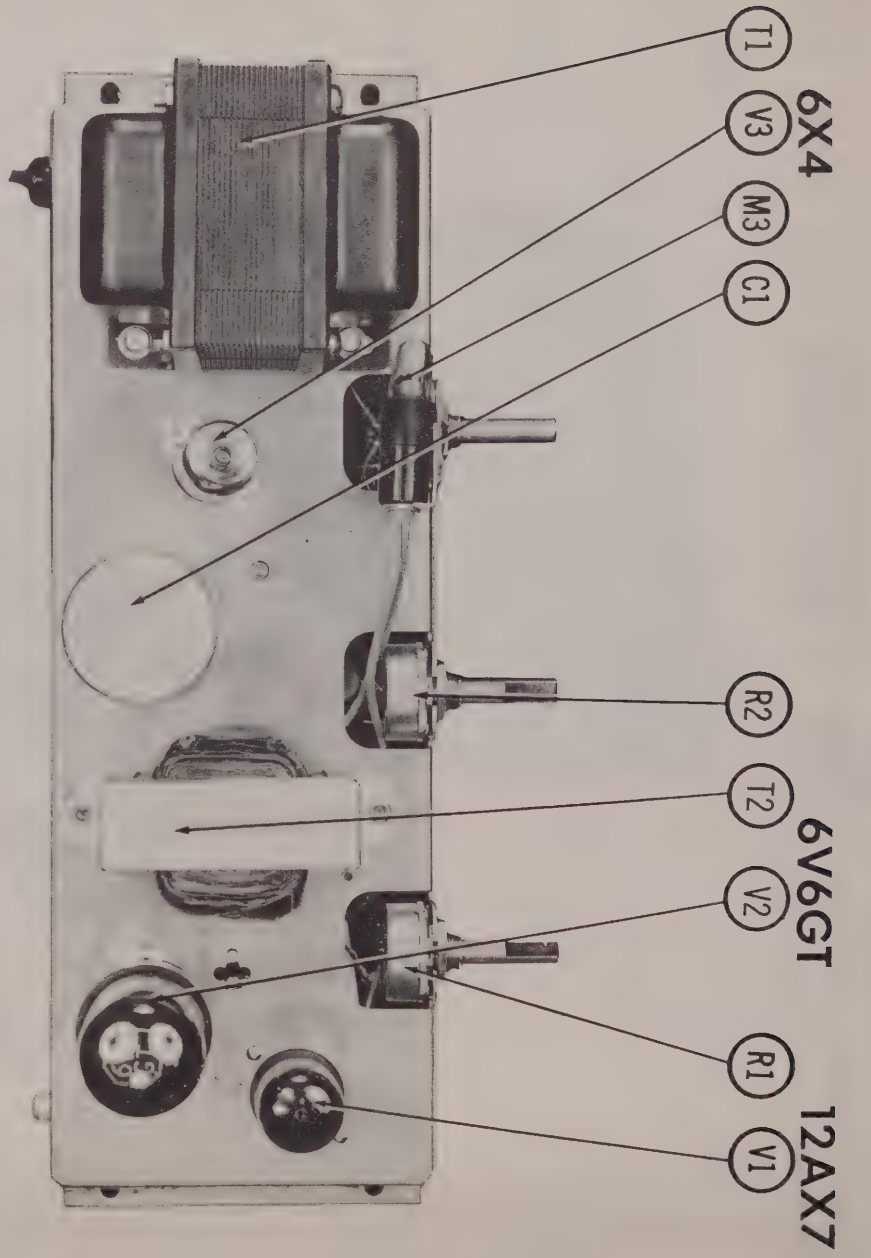
①Late versions use 470K in this application (Part #6K121279)
②Early versions use 220K in this application (Part #6K122322)
③Used in late chassis only
④Early versions use 22K in this application (Part #6K119935)
⑤Early versions use 390Ω in this application (Part #6R3995)
⑥Early versions use 3300Ω in this application (Part #6K125365)

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	Motorola PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @.31A	560VCT @.050A	6.3V @1.45A	25C638852		P-3154①		PC8420①	22R30①	

①Drill New Mounting Hole

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	Motorola PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	4500Ω	3-4Ω	25B638839	Z1109	A-2935①	AU-607	A-8092②	26S49 ②	S-5X	①Tape center Tap ②Drill new mounting hole.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	Motorola PART No.	QUAM PART No.	
SP1	6"	PM	3-4Ω	50K636328①	6A1	①Used in 3H24 Series
SP2	4"	PM	6-8Ω	50K636329①	4A07Z8	②Used in 3H25 Series
	4"	PM	6-8Ω	50K636688①	4A07Z8	
	6"	PM	3-4Ω	50C634473②	6A15	
	4"	PM	6-8Ω	50C636446②	4A1Z6	
	4"	PM	6-8Ω	50C636446②	4A1Z6	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	Motorola PART No.	ASTATIC PART No.		JENSEN PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	MOUNT	
M1	59B634530 or 59B634441	55-T or 81-TB	GD-J			

ASTATIC NEEDLE LISTING SHOWN ABOVE IS SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	Motorola PART No.	JENSEN PART No.	WALCO PART No.	
M2	47K632185 *	† S-66 or †♦ S-66SD or ♦ S-66D	† W-75TPS or †♦ W-75DS or ♦ W-75TPD	* Used in cartridge with replaceable needle only † Jewel ♦ Diamond

MISCELLANEOUS

ITEM No.	PART NAME	Motorola PART No.	NOTES
M3	Lamp	65R125595	#1847 (Not used in some versions)

CABINETS & CABINET PARTS

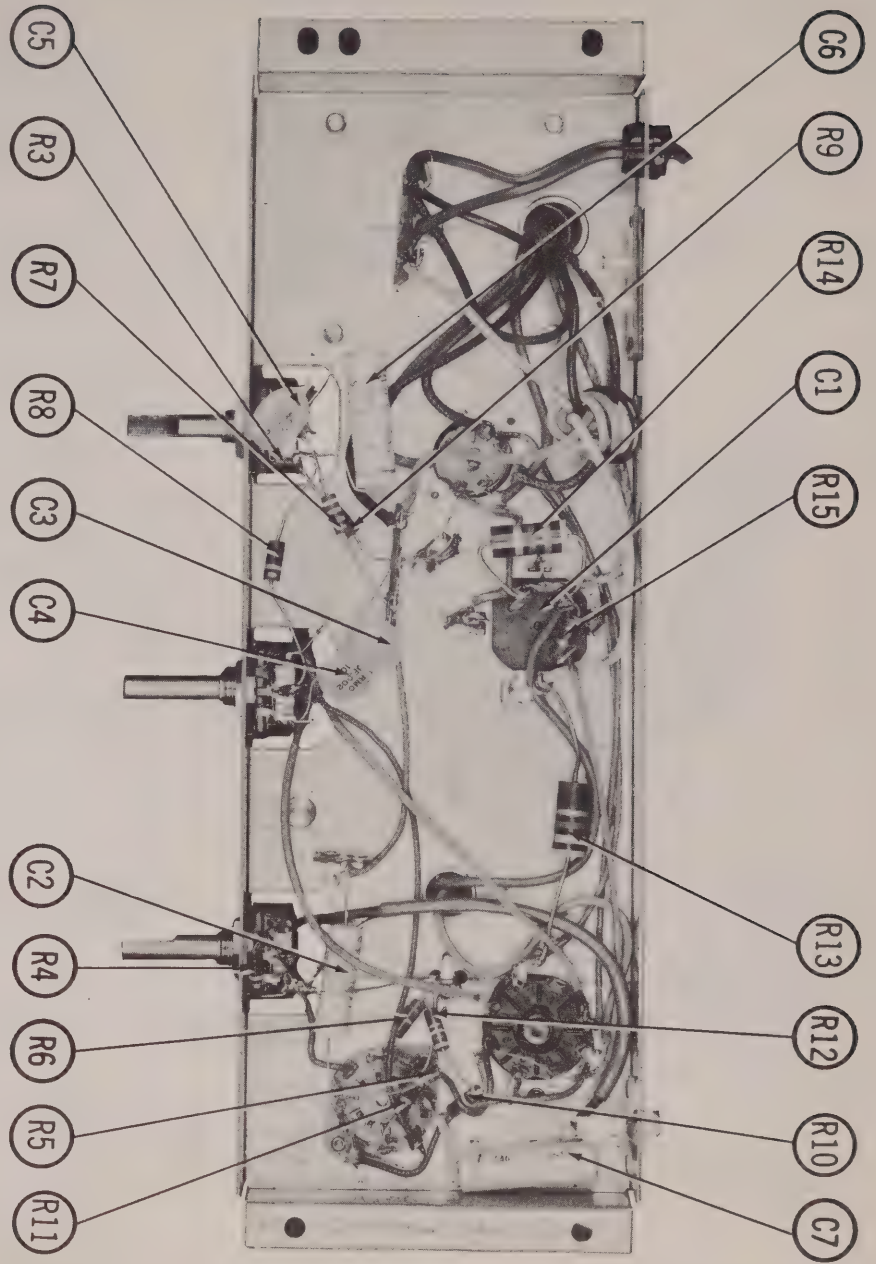
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

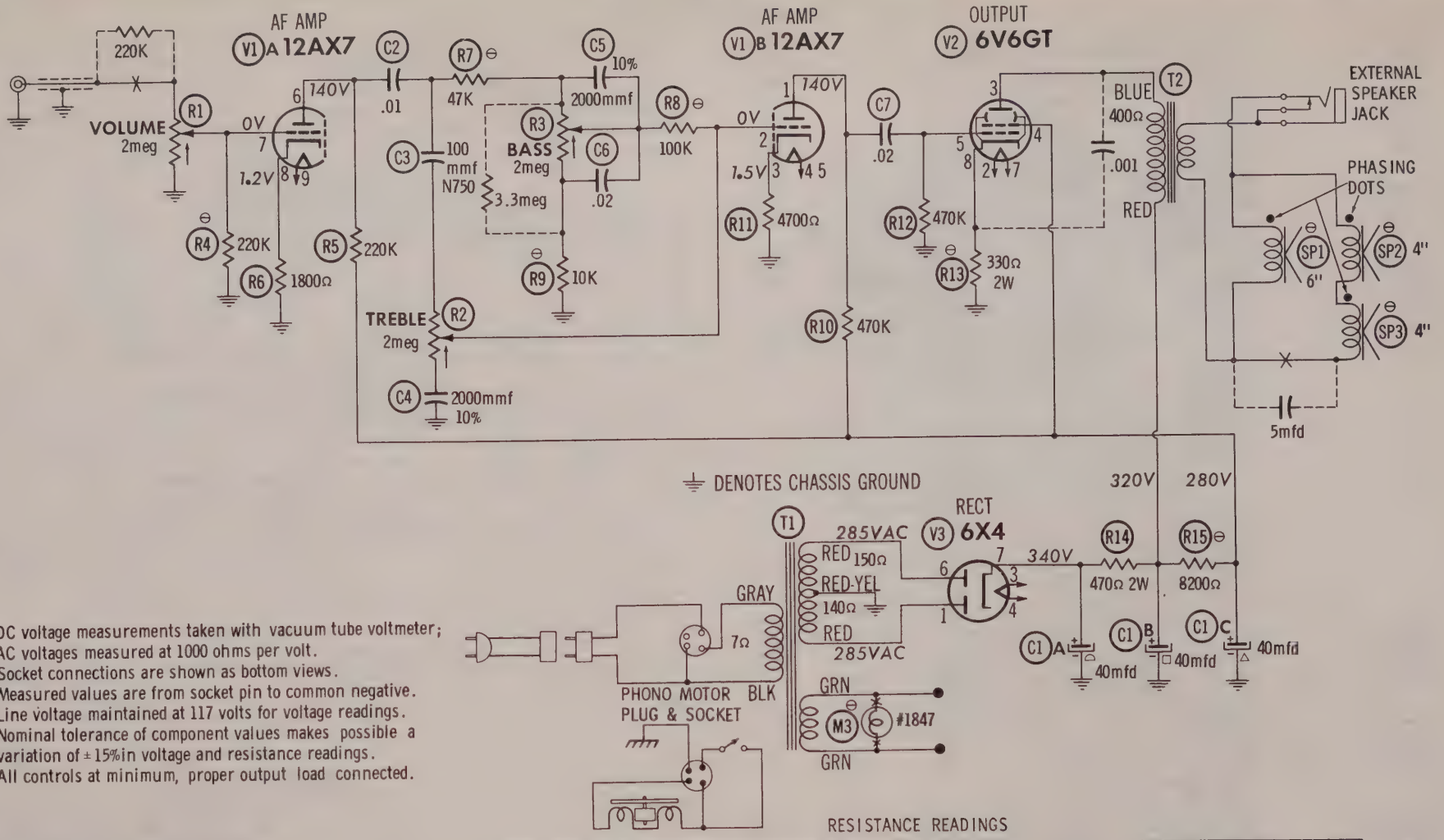
NAME	PART NO.	DESCRIPTION
Knob	36C638435	3H24 Series
Knob	36K639306	Bass, 3H25 Series
Knob	36K639307	Treble, 3H25 Series
Knob	36C639305	Volume, 3H25 Series
Cabinet	16K638960	Complete, Blue, Less Grille & Grille Overlay, Models 3H24B-1, 2
Cabinet	16K638961	Complete, White & Tan, Less Grille & Grille Overlay, Models 3H24S-1, 2
Cabinet	1V638927	Imperial Mahogany, Incl. Medallion, Model 3H25M
Cabinet	1V639790	Imperial Mahogany, Incl. Medallion, Model 3H25M-1
Cabinet	1V638926	Swedish Oak, Incl. Medallion, Model 3H25B
Cabinet	1V639789	Swedish Oak, Incl. Medallion, Model 3H25B-1
Handle	55B638424	3H24 Series

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No.	1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No.	8401
Phono Pick-up Arm Cable	Use BELDEN No.	8430 (Two Conductor - Twisted)

CHASSIS—BOTTOM VIEW





1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	†480K	110K	4700Ω	INF	INF	†230K	0Ω	1800Ω	INF
V2	6V6GT	NC	INF	†870Ω	†8700Ω	470K	TP	INF	330Ω	
V3	6X4	140Ω	NC	INF	INF	NC	160Ω	20K(MIN)		

† MEASURED FROM PIN 7 OF V3
NC NO CONNECTION
TP TIE POINT

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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*TRADE MARK

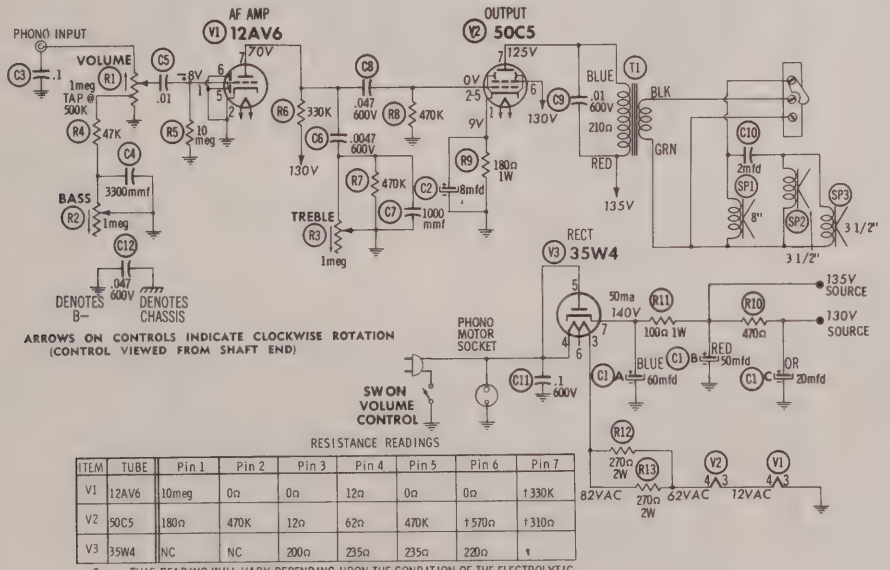
EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

MUNTZ MODEL 802

MUNTZ
MODEL 802

TRADE NAME	Muntz Model 802
MANUFACTURER	Muntz TV Inc., 1000 Grey Ave., Evanston, Illinois
TYPE SET	AC Operated Phono Amplifier with 4 Speed Automatic Record Changer
TUBES (Three)	Types 12AV6 AF Amplifier, 50C5 Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycles RATING .275 Amp. @ 117 Volts AC (26 Watts)

FOR SERVICE INFORMATION ON RECORD CHANGER PART #PH-0018 — SEE SIMILAR WEBCOR MODEL 152 - PHOTOFACT SET 375 FOLDER 17 OR RECORD CHANGER MANUAL RC-10.



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12AV6	10meg	0Ω	0Ω	12Ω	0Ω	0Ω	†330K
V2	50C5	180Ω	470K	12Ω	62Ω	470K	†570Ω	†310Ω
V3	35W4	NC	NC	200Ω	235Ω	235Ω	220Ω	¶

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
† MEASURED FROM PIN 7 OF V3.
NC NO CONNECTION.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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415-12

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PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amplifier	12AV6	
V2	Output	50C5	
V3	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	MUNTZ PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	60	150	CE8001	PRS150V80	BBRT84215	TCT3117	TDLT-7	FMT-339	TVA-3455
B	50	150		4020					
C	20	150							
C2	8	100	CE0035	PRS150V8	BBR8-150	TC41	TD-8-150	MT-1508	TVA-1405

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	MUNTZ PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C3	.1	200	CP-0026	P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	
C4	3300		CC-0168	BPD-0033	DD-332	BYA10D33	UC-5233	5HK-D33	
C5	.01	400	CP-0041	P488N-01	DD-103	CUB4S1	GEM-411	4TM-S1	
C6	.0047	600	CPM-0113	P688N-0047	D6-472	CUB6D47	GEM-6247	6TM-D47	
C7	1000		CC-0117	BPD-001	DD-102	BYA6D1	DC521	5HK-D1	
C8	.047	600	CP-0064	P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	
C9	.01	600	CP-0015	P688N-01	D6-103	CUB6S1	GEM-611	6TM-S1	
C10	2.0	50	CP-0098						
C11	.1	600	CP-0013	P688N-1	DF-104	CUB6P1	GEM-601	6TM-P1	
C12	.047	600	CP-0064	P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	MUNTZ PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1meg	½	VC-8002	BT-71	A47F5-1meg	Q19-137X	UT-443	Volume, Tap ⓐ 500K
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Switch			KB-1 or KR-1*	SWE-12	76-1	US-26	Power On-off
R2A	1meg	½	VC-8003	B-69	A47-1meg-S	Q11-137	U54	Bass
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R3A	1meg	½	VC-8003	B-69	A47-1meg-S	Q11-137	U54	Treble
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	

* Use KR with CRL "Red Label" controls and KB with "Blue Label" controls.

RESISTORS

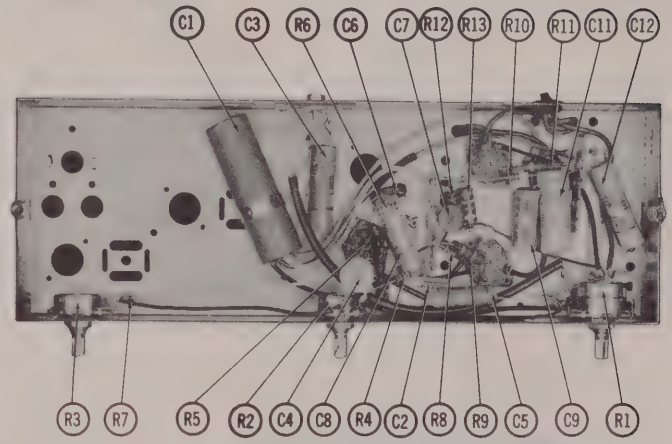
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	MUNTZ PART No.	NOTES
R4	47K		RC-4702-18	
R5	10meg		RC-1005-18	
R6	330K		RC-3303-18	
R7	470K		RC-4703-18	
R8	470K		RC-4703-18	
R9	180Ω	1	RC-180-11	
R10	470Ω		RC-470-18	
R11	100Ω	1	RC-100-11	
R12	270Ω	2	RC-270-12	
R13	270Ω	2	RC-270-12	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	MUNTZ PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2600Ω	6-8Ω	TO-0053	Z1104 ①	A-2902	AU-604	A-3849	24S64	S-53X	① Drill new mounting hole.

CHASSIS—BOTTOM VIEW



SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA MUNTZ PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1	8"	PM	6-8Ω	SK-0023-3	8A21Z6.8	
SP2	3½"	PM	3-4Ω	SK-0031	3A07	
SP3	3½"	PM	3-4Ω	SK-0031	3A07	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA MUNTZ PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	JENSEN PART No. CARTRIDGE	JENSEN PART No. MOUNT	REMARKS
M1		81-TB				

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA MUNTZ PART No.	JENSEN PART No.	WALCO PART No.	REMARKS
M2				

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	KB-8004	On-Off-Volume, Bass, Treble
Cabinet	CW-0088	Mahogany
Cabinet	CW-0088-2	Blond
Back	BP-0164	Cabinet

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

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*TRADE MARK

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

SYLVANIA MODEL 4307 (Ch. 1-609-6)

SYLVANIA MODEL
4307 (Ch. 1-609-6)

SYLVANIA MODEL
4307 (Ch. 1-609-6)

TRADE NAME	Sylvania Model 4307 (Ch. 1-609-6)
MANUFACTURER	Sylvania Home Electronics, Div. of Sylvania Electric Products Inc., 700 Ellicott St., Batavia, N.Y.
TYPE SET	AC Operated Phono Amplifier with 4 Speed Automatic Record Changer
TUBES (Four)	Types 12AX7 AF Amp. -Phase Inv., (2) 6V6GT Output, 5Y3GT Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycle RATING .61 Amp. @117 Volts AC (60 Watts Less Motor)

FOR SERVICE INFORMATION ON RECORD CHANGER — SEE SYLVANIA 1-318-2 — PHOTOFACT SET 401 FOLDER 13

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PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amp. -Phase Inv.	12AX7	
V2	Output	6V6GT	
V3	Output	6V6GT	
V4	Rectifier	5Y3GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA Sylvania PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▬ 40	300	161-3031	AFH3-44	C0350	FP377	TMT-23	T-170	TVL-3787
B	■ 40	300							
C	▲ 40	300							
C2	4	150NP	161-1044	NP-PRS450V4	BBR8-150 † BBR8-150 †	TC41 † TC41 †	TD-8-150 † TD-8-150 †	MT-1508 † MT-1508 †	R1251 *

*Non Catalog Item
† Connect Negative Leads Together

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA Sylvania PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C3	.047	400		P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C4	.047	400		P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C5	1000	1000	169-0066	DAC-2	DD-102	BYA10D1	DC3021	5GA-D1	

CONTROLS

ITEM No.	RATING RESIST-ANCE	RATING WATTS	REPLACEMENT DATA Sylvania PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	2.2meg		153-0142					Loudness, Tap @ 500K & 1meg
R2	500K		153-0141					Treble
R3	1meg		153-0140					Bass

RESISTORS

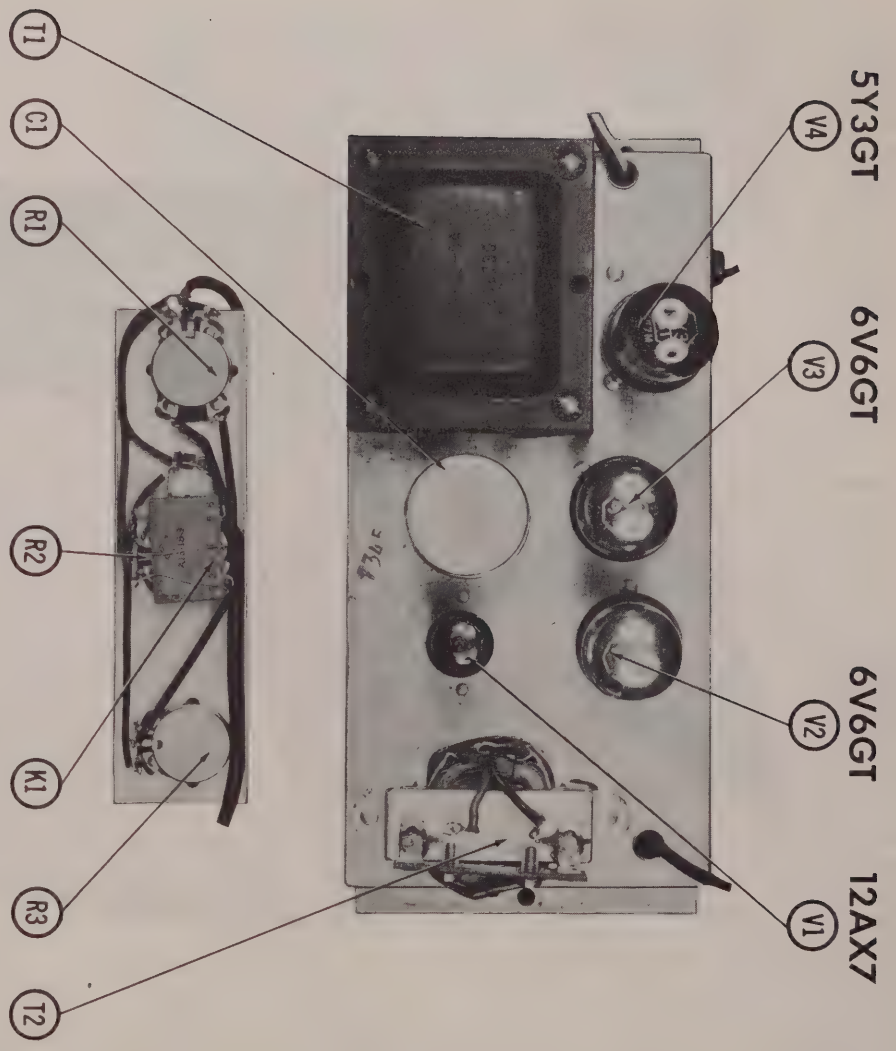
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	Sylvania PART No.	NOTES
R4	220K			
R5	220K			
R6	3900Ω			
R7	470K			
R8	12K			
R9	470K			
R10	120Ω	2		
R11	100K			
R12	470Ω	1		

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA Sylvania PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @ .61A	500VCT @ .100A	5V @ 1.9A	141-0072	P9207			PM8404	24R13	R-10B
	SEC. 3	SEC. 4	SEC. 5							
	6.3V @ 1.15A									

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	Sylvania PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	6700Ω CT	6-8Ω	143-0064	Z1011	A-2905①	AU-606	A-3870		S-55X	①Drill New Mounting Hole.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	Sylvania PART No.	QUAM PART No.	
SP1	12"	PM	6-8Ω	539-1209	12A31Z8	
SP2	5"	PM	3-4Ω	539-0507	5A1R	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	Sylvania PART No.	REPLACEMENT DATA
K1	Tone Compensation	27mmf, 820mmf, 4700mmf 3000mmf, 18mmf 330K, 68K, 47K,	190-0038	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	Sylvania PART No.	ASTATIC PART No.		JENSEN PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	MOUNT	
M1	916-0007 ①	53-T	GD-J			① Includes Needle

ASTATIC NEEDLE LISTING SHOWN ABOVE IS SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	Sylvania PART No.	JENSEN PART No.	WALCO PART No.	
M2	912-0008	† S-66 or † ♦S-66SD or ♦ S-66D	† W-75TPS or † ♦ W-75DS or ♦ W-75TPD	† Jewel ♦ Diamond

CABINETS & CABINET PARTS

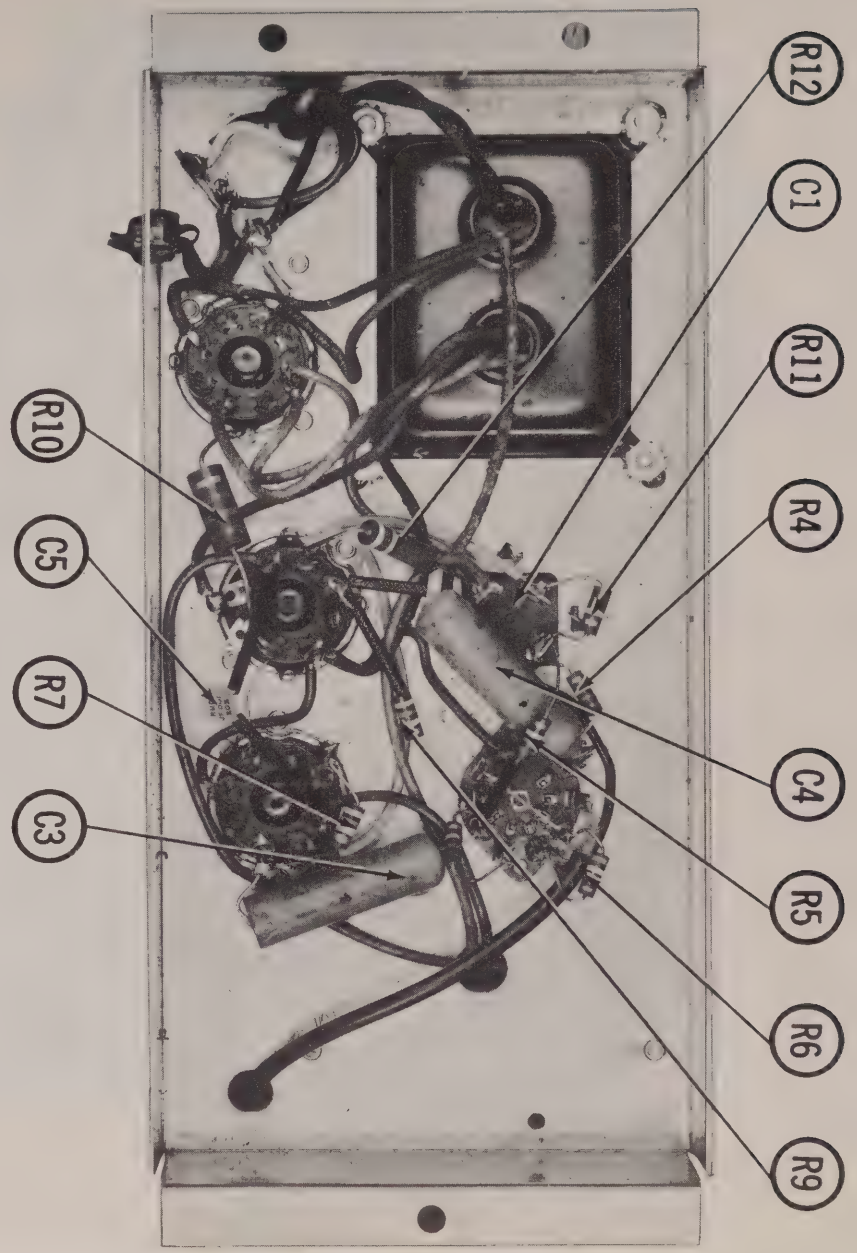
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

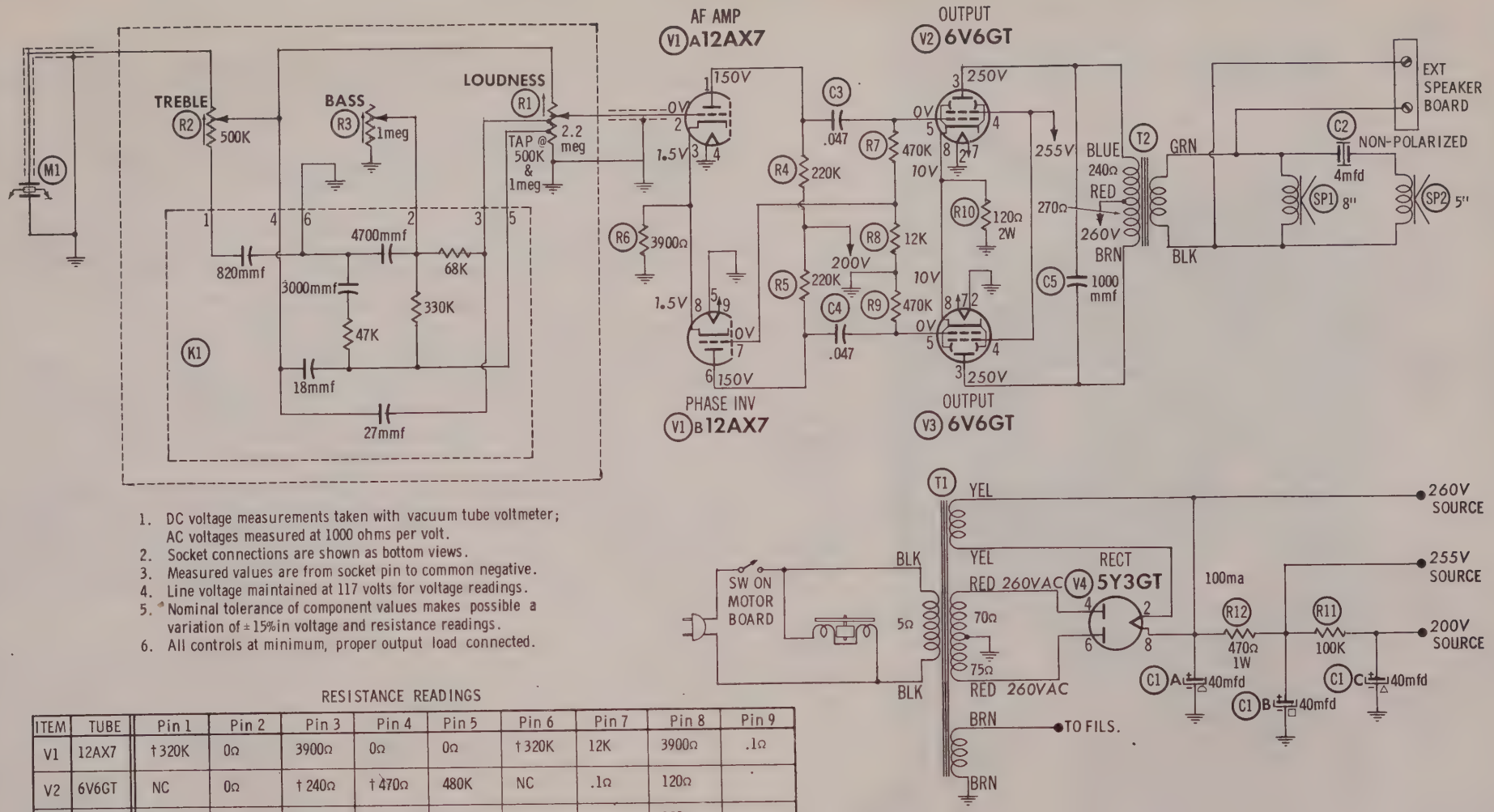
NAME	PART NO.	DESCRIPTION
Knob	740-0179	Loudness, Bass, Treble

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

CHASSIS—BOTTOM VIEW





1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	†320K	0Ω	3900Ω	0Ω	0Ω	†320K	12K	3900Ω	.1Ω
V2	6V6GT	NC	0Ω	†240Ω	†470Ω	480K	NC	.1Ω	120Ω	
V3	6V6GT	NC	0Ω	†270Ω	†470Ω	470K	NC	.1Ω	120Ω	
V4	5Y3GT	NC	20K(MIN)	NC	74Ω	NC	68Ω	NC	20K(MIN)	

† MEASURED FROM PIN 8 OF V4
NC NO CONNECTION

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION
(CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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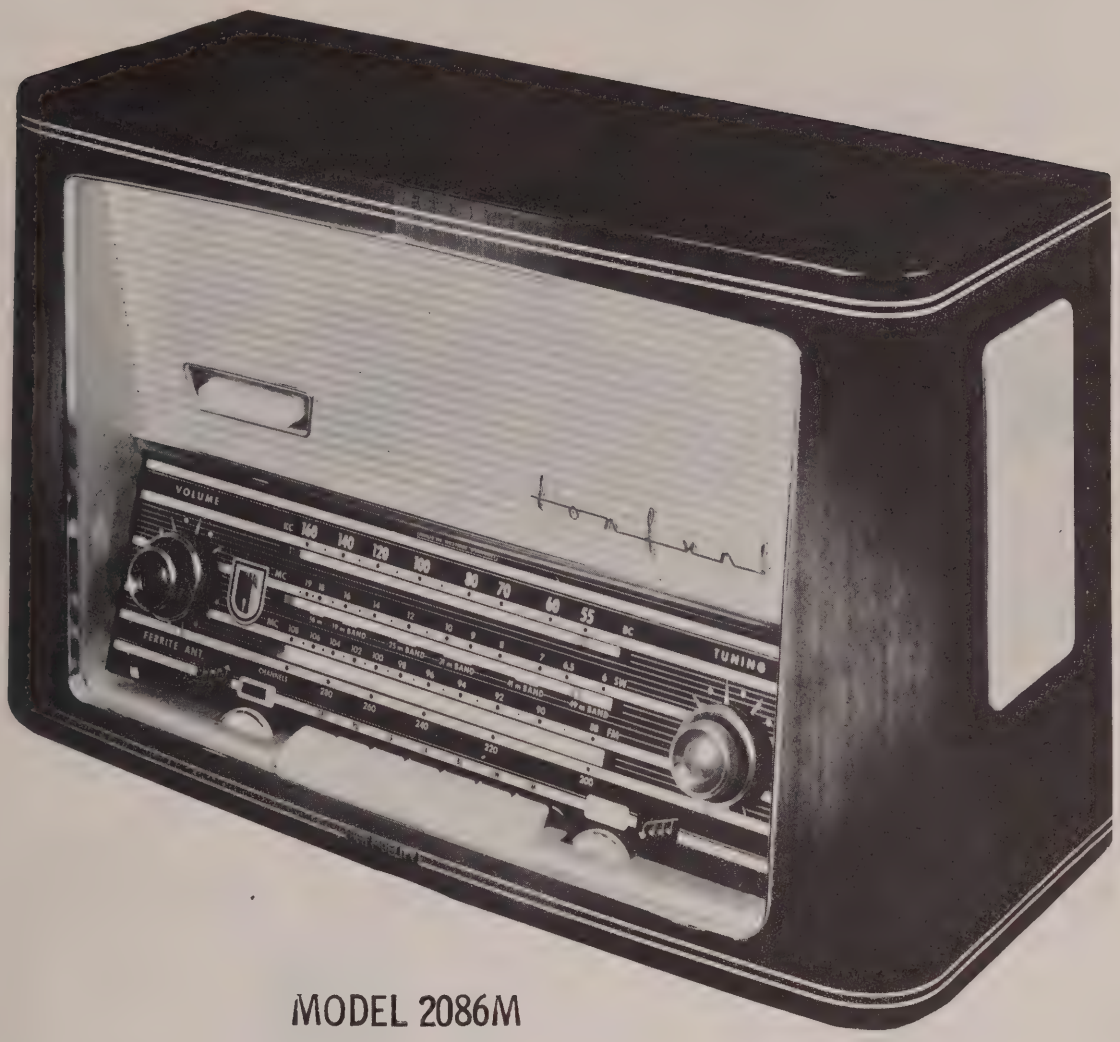
TONFUNK MODELS W2006M, 2086M

TONFUNK MODELS W2006M, 2086M



MODEL 2086M

TONFUNK MODELS W2006M, 2086M

TRADE NAME	Tonfunk Models W2006M, 2086M		
SUPPLIER	Videola-Erie Corp., 75 Front Street, Brooklyn 1, N. Y.		
TYPE SET	AC Operated FM-BC-SW Receiver		
TUBES (Six)	Types 6AQ8/ECC85 FM RF Amp.-FM Conv., 6AJ8/ECH81 1st FM IF Amp.-AM Mixer-AM Osc., EF89 2nd FM-AM IF Amp., 6T8/EABC80 Ratio Det.-AM Det.-AVC-AF Amp., 6BR5/EM80 Tuning Indicator, 6BQ5/EL84 Output		
POWER SUPPLY	110-120 Volts AC - 60 Cycles	RATING	.47 Amp. @ 117 Volts AC (49 Watts)
TUNING RANGE—BROADCAST	520 - 1635KC	SHORT WAVE 6 - 19.5MC	
FREQ. MOD.	88 - 108MC		

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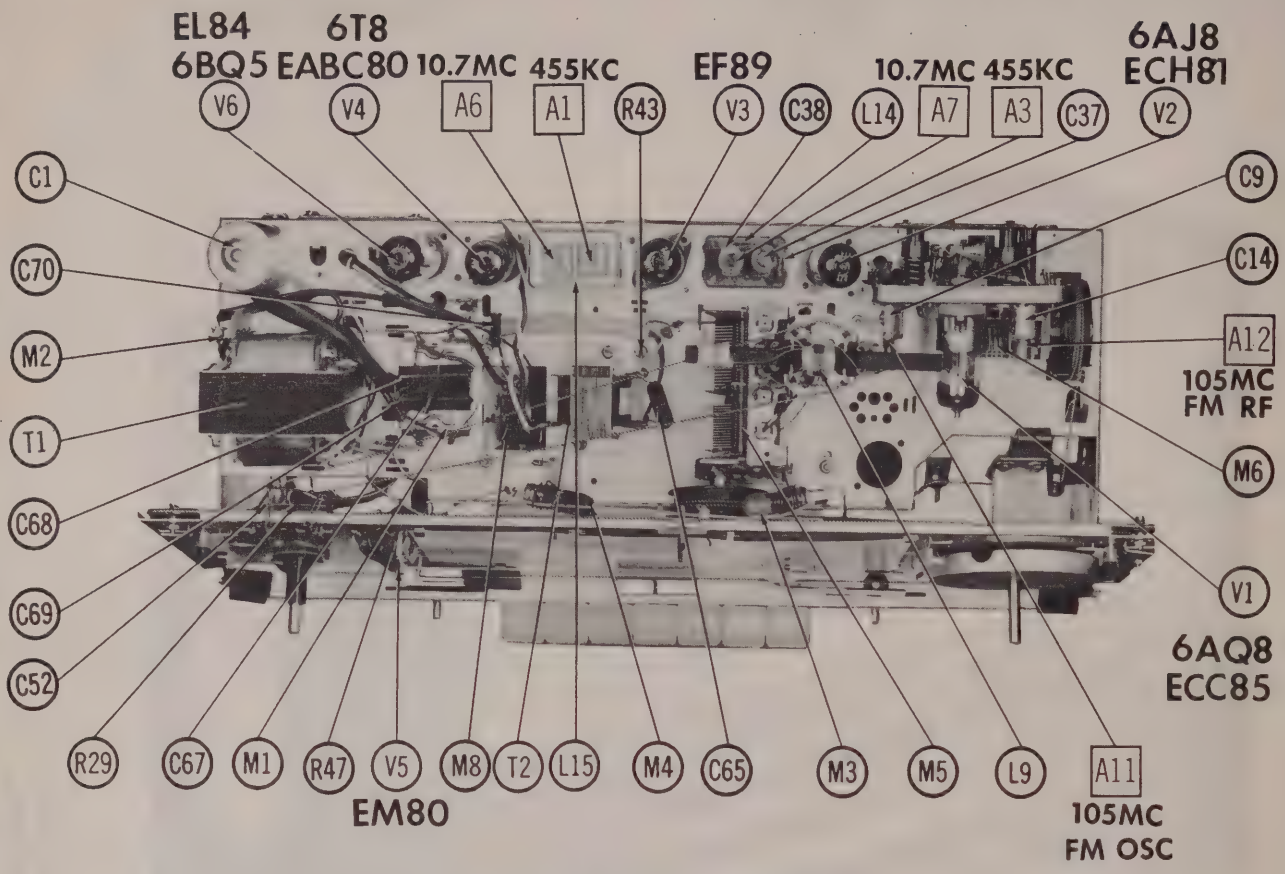
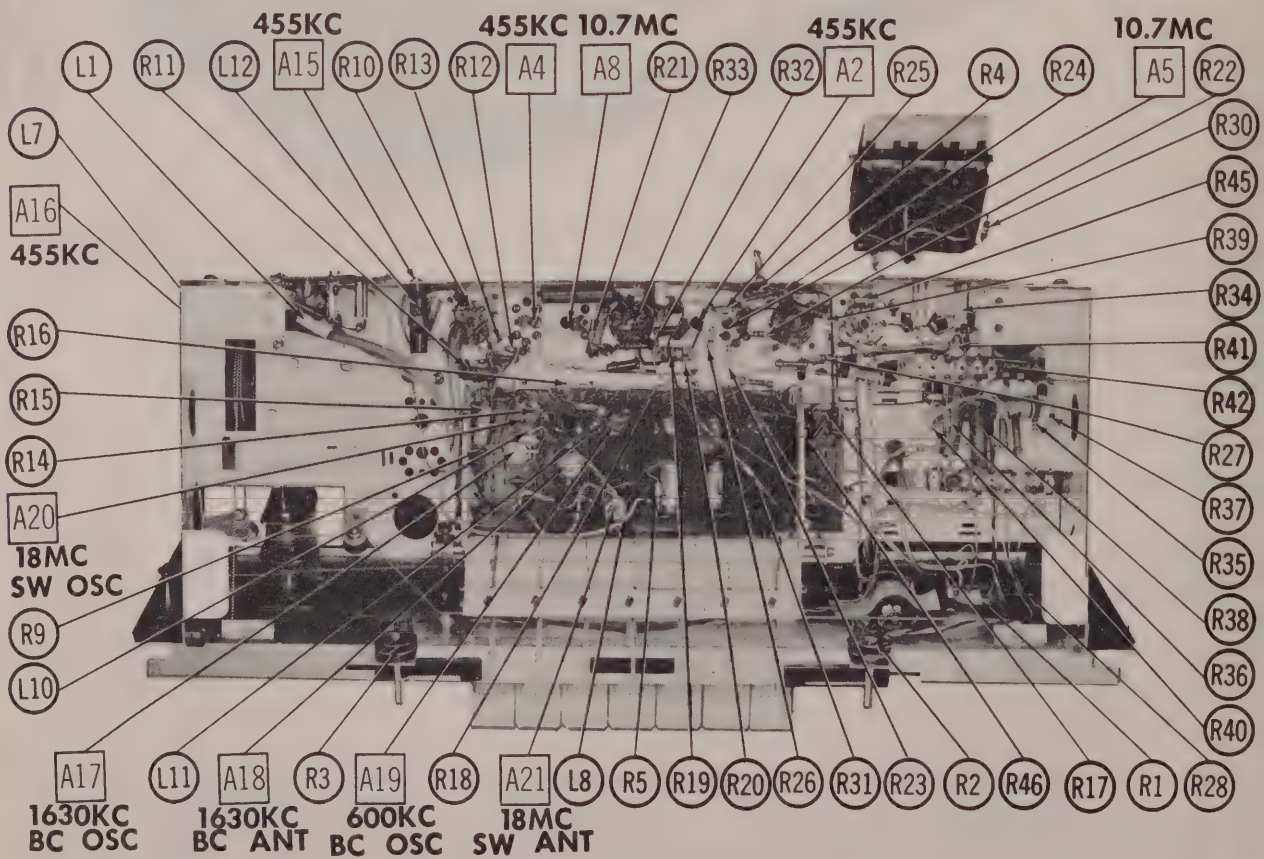
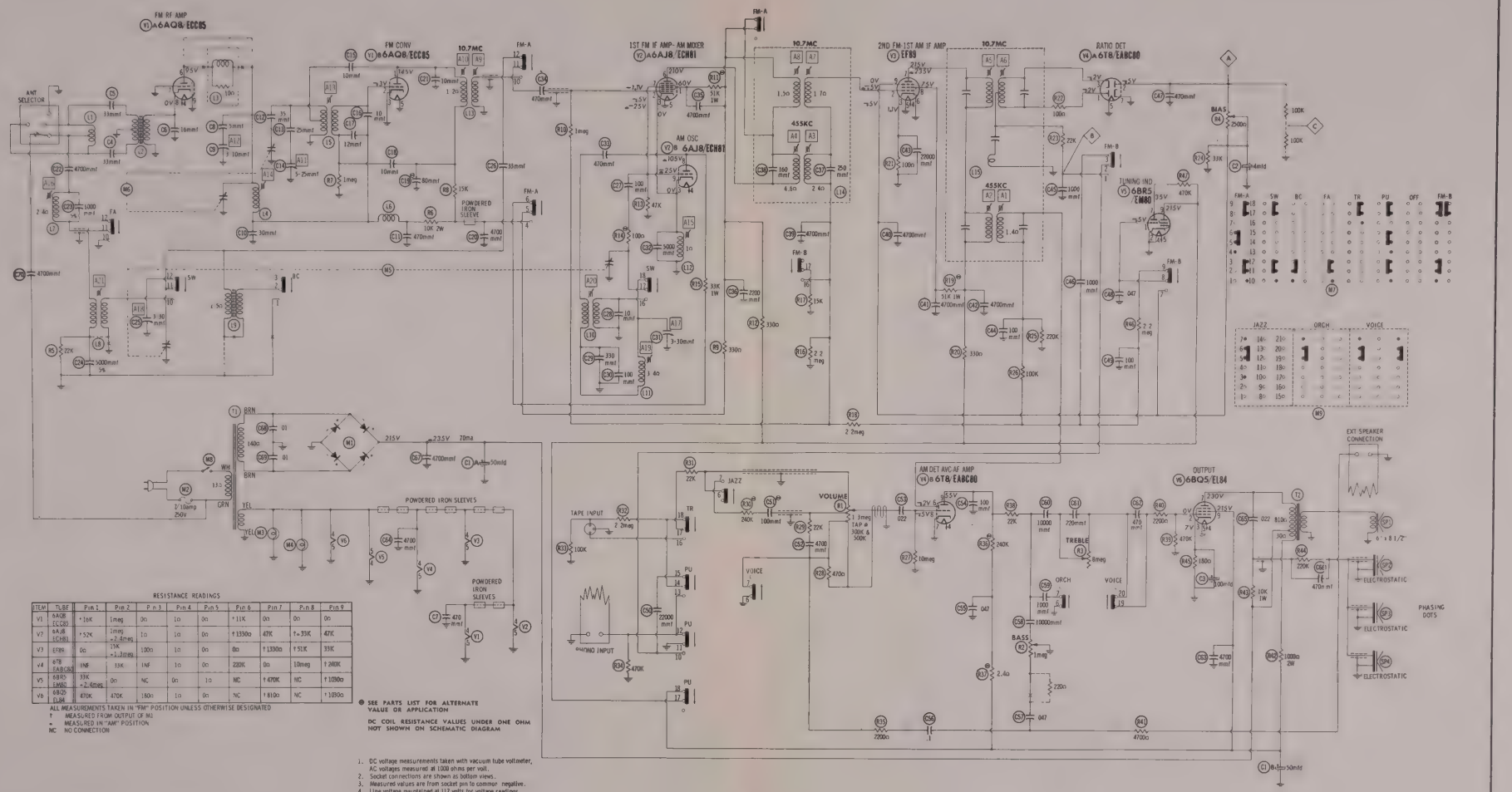


CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW - ALIGN, INDUCTOR & RESISTOR IDENT



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6AQ8 ECC85	*16K	1meg	0Ω	1Ω	0Ω	*11K	0Ω	0Ω	0Ω
V2	6AJ8 ECH81	*52K	1meg = 2.4meg	1Ω	1Ω	0Ω	†1330Ω	47K	†=33K	47K
V3	EF89	0Ω	15K	100Ω	1Ω	0Ω	0Ω	†1330Ω	†51K	33K
V4	6T8 EABC80	1MΩ	33K	1MΩ	1Ω	0Ω	220K	0Ω	10meg	†280K
V5	6BR5 EM80	33K = 2.4meg	0Ω	NC	0Ω	1Ω	NC	†470K	NC	†1090Ω
V6	6BQ5 EL84	470K	470K	180Ω	1Ω	0Ω	NC	†810Ω	NC	†1090Ω

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED
† MEASURED FROM OUTPUT OF M1
= MEASURED IN "AM" POSITION
NC NO CONNECTION

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

1. DC voltage measurements taken with vacuum tube voltmeter, AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±5% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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415-14

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

AM IF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01mfd	High side to pin 2 (grid) of 6AJ8/ECH81 (V2). Low side to chassis.	455KC (400~ Mod)	BC	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100K (±1%) resistors in series from point Ⓐ to B-. The junction of these two resistors is alignment point Ⓒ as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
2.	200mmf	High side to pin 2 (grid) of EF89 (V3). Low side to chassis.	10.7MC (Unmod)	FM	Point of non-interference	DC probe to point Ⓐ. Common to chassis.	A5	Adjust for maximum deflection.
3.	"	"	"	"	"	DC probe to point Ⓑ. Common to point Ⓒ.	A6	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
4.	"	High side to pin 2 (grid) of 6AQ8/ECC85 (V1). Low side to chassis.	"	"	"	DC probe to point Ⓐ. Common to chassis.	A7, A8, A9, A10	Adjust for maximum deflection.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
2.	200mmf	High side to pin 2 (grid) of EF89 (V3). Low side to chassis.	10.7MC	FM	Point of non-interference	Vert. Amp. to point Ⓐ. Low side to chassis.	A5	Disconnect stabilizing capacitor C2. Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
3.	"	"	"	"	"	Vert. Amp. to point Ⓑ. Low side to chassis.	A6	Reconnect stabilizing Capacitor C2. Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A5 for maximum amplitude and straightness of crossover lines.
4.	"	High side to pin 2 (grid) of 6AQ8/ECC85 (V1). Low side to chassis.	"	"	"	Vert. Amp. to point Ⓐ. Low side to point Ⓑ.	A7, A8, A9, A10	Disconnect stabilizing Capacitor C2. Adjust for curve of maximum amplitude and symmetry similar to Fig. 1. Reconnect Capacitor C2.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5.	270Ω Carbon Resistor	Across FM Antenna terminals.	105MC	FM	105MC	DC probe to point Ⓐ. Common to chassis.	A11, A12	Adjust for maximum deflection.
6.	"	"	90MC	"	90MC	"	A13, A14	Adjust for maximum deflection. Repeat steps 5 and 6 until no further improvement can be obtained.

AM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
7.		Loop	455KC (400~ Mod)	BC, FA	Tuning gang fully open	Across voice coil	A15, A16	Fashion loop of several turns of wire and radiate signal into antenna. Adjust for MINIMUM reading.
8.		"	1630KC	"	"	"	A17, A18	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
9.		"	600KC	"	600KC signal	"	A19	"
10.		"	18MC	SW	18MC	"	A20, A21	"

FIG. 1

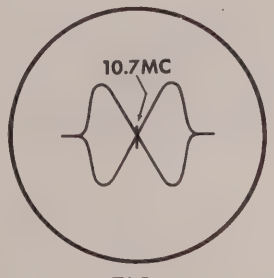
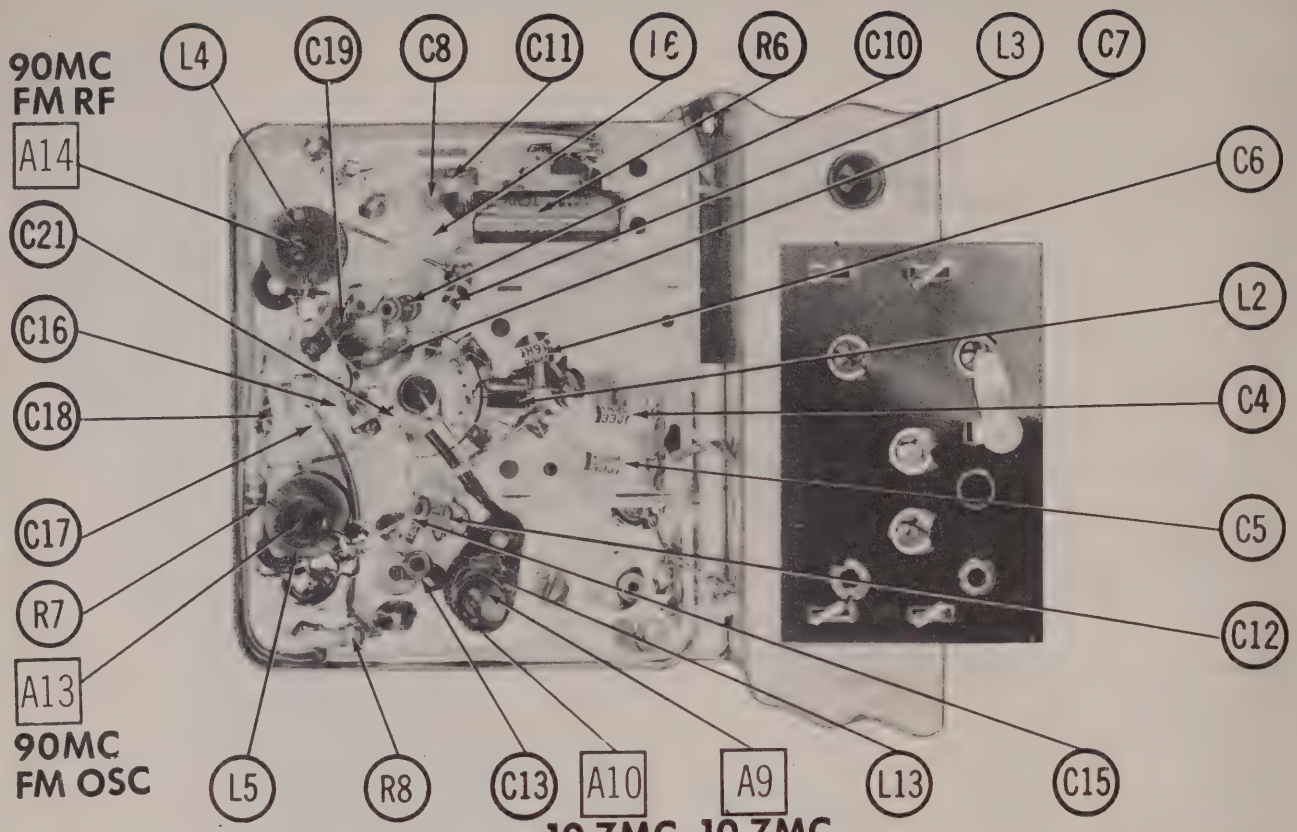
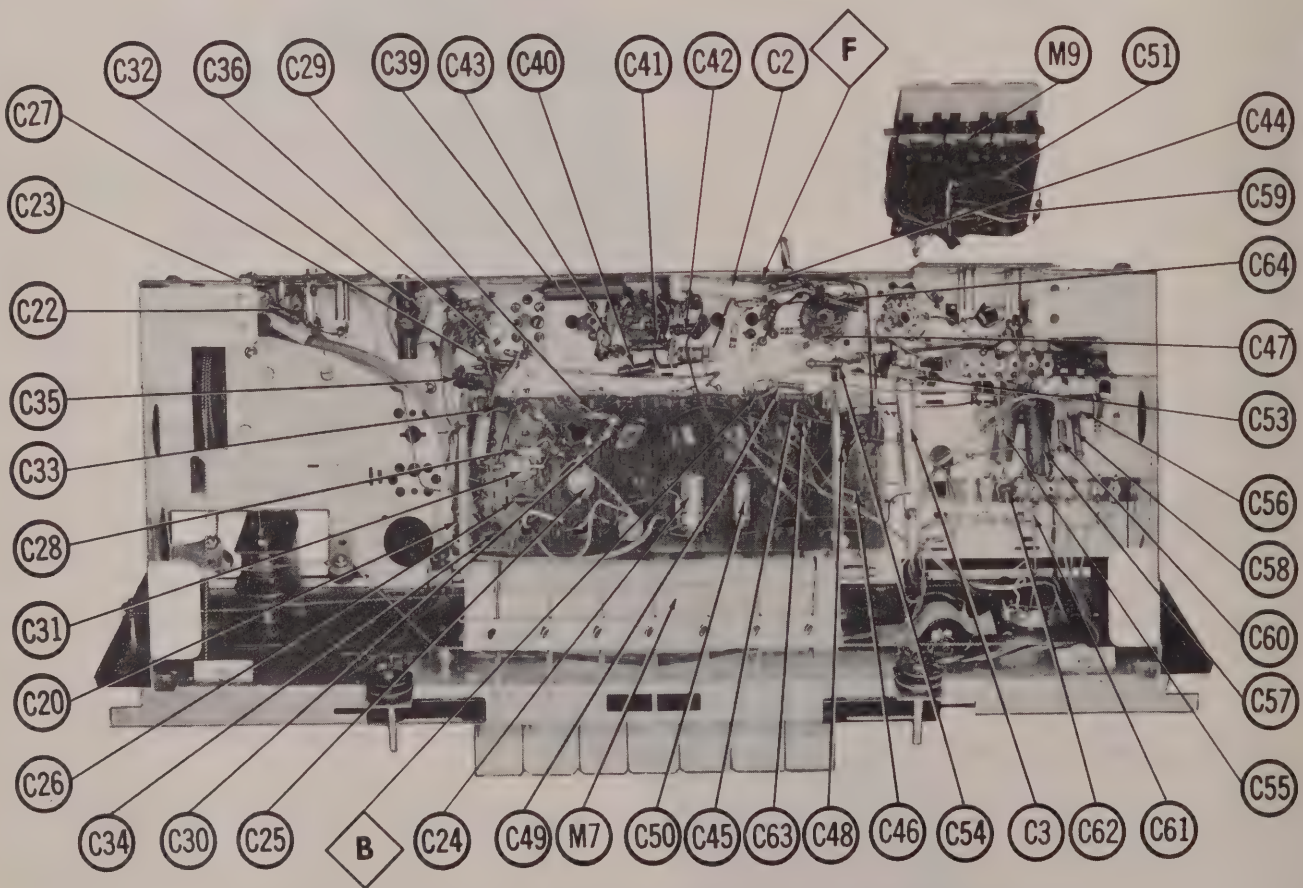


FIG. 2



FM RF SUB CHASSIS



CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE
V1	FM RF Amp. - FM Conv.	6AQ8/ECC85
V2	1st FM IF Amp. - AM Mixer - AM Osc.	6AJ8/ECH81
V3	2nd FM-1st AM IF Amp.	EF89
V4	Ratio Det. - AM Det. - AVC - AF Amp.	6T8/EABC80
V5	Tuning Indicator	6BR5/EM80
V6	Output	6BQ5/EL84

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA TONFUNK PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	50	385		PR4-200	BBRQ0174		CDB-Q-422	D-190	R2462 *
B	50	385							
C2	4	80		PRS150V4	BBR4-150	TC40	TD-4-150	MT-1504	TVA-1402
C3	100	15		PRS15V100	BBR100-15	TC2501	TD-100-15	MTH-1510	TVA-1160

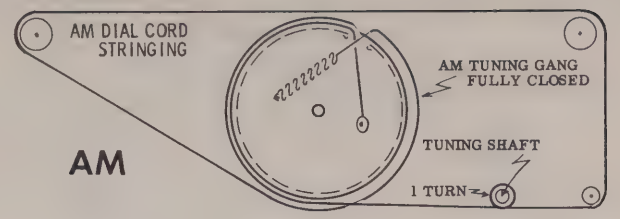
* Non Catalog Item

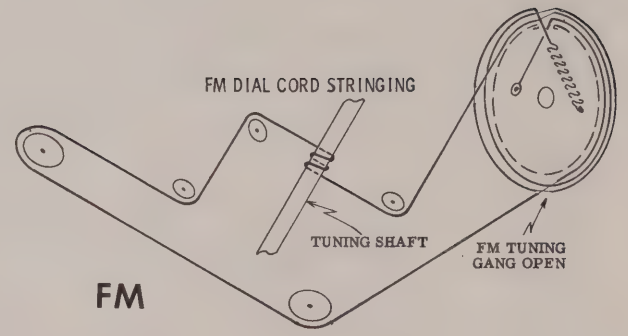
FIXED CAPACITORS

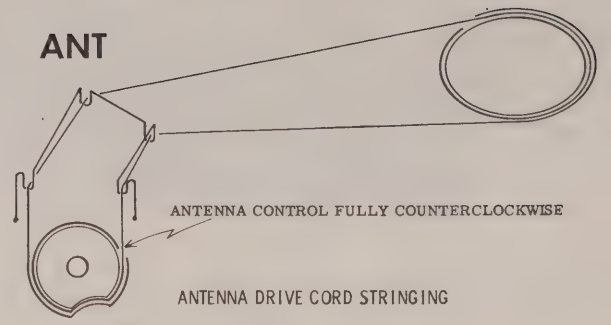
Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA TONFUNK PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C4	33			SI 33	D6-330	LT6Q33	UC-5433	5GA-Q33	
C5	33			SI 33	D6-330	LT6Q33	UC-5433	5GA-Q33	
C6	16			SI 15	D6-150	LT6Q15	UC-5415	5GA-Q15	
C7	470			SI 470	D6-471	LT6T47	UC-5347	5GA-T47	
C8	5			SI 5	D6-050	LT6V5	ZT-555	5GA-V5	
C9	3-10								
C10	30			SI 30				5GA-Q3	
C11	470			BPD-00047	D6-471	BYA10T47	UC-5347	5GA-T47	
C12	35								
C13	25			SI 25	D6-250	LT6Q25	UC-5425	5GA-Q25	
C14	5-25								
C15	10			SI 10	D6-100	LT6Q1	UC-541	5GA-Q1	
C16	10			SI 10	D6-100	LT6Q1	UC-541	5GA-Q1	
C17	12			SI 12	D6-120	LT6Q12	UC-5412	5GA-Q12	
C18	10			1468-00001	D6-100	5W5Q1	MC-215	1FM-41	
C19	80								①
C20	4700			SI 4700	D6-472	LT6D47	UC-5247	5GA-D47	
C21	10			SI 10	D6-100	LT6Q1	UC-541	5GA-Q1	
C22	4700			SI 4700	D6-472	LT6D47	UC-5247	5GA-D47	
C23	1000								5%
C24	5000			1464-005		1DR5D5	MCE465	MS-25	5%
C25	3-30								
C26	33			SI 33	D6-330	LT6Q33	UC-5433	5GA-Q33	
C27	100			SI 100	D6-101	LT6T1	UC-531	5GA-T1	
C28	10			1468-00001	D6-100	5W5Q1	MC215	1FM-Q1	
C29	330			SI 330	D6-331	LT6T33	UC-5333	5GA-T33	
C30	100			SI 100	D6-101	LT6T1	UC-531	5GA-T1	
C31	3-30								
C32	5000			SI 5000	D6-502	LT6D5	UC-525	5GA-D5	
C33	470			BPD-00047	DD-471	BYA10T47	UC-5347	5HK-T47	
C34	470			BPD-00047	DD-471	BYA10T47	UC-5347	5HK-T47	
C35	4700			SI 4700	D6-472	LT6D47	UC-5247	5GA-D47	
C36	2200			SI 2200	DD-222	LT6D22	UC-5222	5GA-D22	
C37	250			1468-00025	D6-251	5W5T25	MC240	1FM-325	
C38	160								
C39	4700			SI 4700	D6-472	LT6D47	UC-5247	5GA-D47	
C40	4700			SI 4700	D6-472	LT6D47	UC-5247	5GA-D47	
C41	4700			SI 4700	D6-472	LT6D47	UC-5247	5GA-D47	
C42	4700			SI 4700	D6-472	LT6D47	UC-5247	5GA-D47	
C43	22000			SI 20000	DD-203	LT6S2		5GA-S2	
C44	100			SI 100	D6-101	LT6T1	UC-531	5GA-T1	
C45	1000			SI 1000	D6-102	LT6D1	UC-521	5GA-D1	
C46	1000			SI 1000	D6-102	LT6D1	UC-521	5GA-D1	
C47	470			SI 470	D6-471	LT6T47	UC-5347	5GA-T47	
C48	.047	125		P288N-047	DF-503	CUB2S47	GEM-4147	4TM-S47	
C49	100			SI 100	D6-101	LT6T1	UC-531	5GA-T1	
C50	22000			SI 20000	DD-203	LT6S2		5HK-S2	
C51	100			SI 100	D6-101	LT6T1	UC-531	5GA-T1	②
C52	4700			SI 4700	D6-472	LT6D47	UC-5247	5GA-D47	
C53	.022	250		P488N-022	DD-203	CUB4S22	GEM-4122	4TM-S22	
C54	100			SI 100	D6-101	LT6T1		5GA-T1	

DRIVE CORD STRINGING







PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	TONFUNK PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C55	.047	500		P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	
C56	.1	125		P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	
C57	.047	125		P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47	
C58	10000			SI 10000	D6-103	LT6S1	DC511	5GA-S1	
C59	1000			SI 1000	D6-102	LT6D1	UC-521	5GA-D1	
C60	10000			SI 10000	D6-103	LT6S1	DC511	5GA-S1	
C61	220			SI 220	D6-221	LT6T22	UC-5322	5GA-T22	
C62	470			BPD-00047	DD-471	BYA10T47	UC-5347	5GA-T47	
C63	4700			SI 4700	D6-472	LT6D47	UC-5247	5GA-D47	
C64	4700			SI 4700	D6-472	LT6D47	UC-5247	5GA-D47	
C65	.022	500		P688N-022	DD-203	CUB6S22	GEM-6122	6TM-S22	
C66	470			BPD-00047	DD-471	BYA10T47	UC-5347	5GA-T47	
C67	4700			SI 4700	D6-472	LT6D47	UC-5247	5GA-D47	
C68	.01	500		P688N-01	D6-103	CUB6S1	GEM-611	6TM-S1	
C69	.01	500		P688N-01	D6-103	CUB6S1	GEM-611	6TM-S1	
C70	4700			SI 4700	D6-472	LT6D47	UC-5247	5GA-D47	

① Some versions may use 80mmf in this application.
② Some versions may use 47mmf in this application.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	TONFUNK PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	1.3meg						UDT-291	Volume, Tap ② 300K & 500K
R2	1meg							Bass
R3	8meg							Treble
R4	2500Ω							Bias

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	TONFUNK PART No.	NOTES
R5	22K			
R6	10K	2		
R7	1meg			
R8	15K			
R9	330Ω			
R10	1meg			
R11	51K	1		Note 1
R12	330Ω			
R13	47K			
R14	100Ω			Note 2
R15	33K	1		
R16	2.2meg			
R17	15K			
R18	2.2meg			
R19	51K	1		Note 1
R20	330Ω			
R21	100Ω			
R22	100Ω			
R23	22K			
R24	33K			
R25	220K			
R26	100K			

ITEM No.	RATING OHMS	RATING WATT	TONFUNK PART No.	NOTES
R27	10meg			
R28	470Ω			
R29	22K			
R30	240K			Note 3
R31	22K			
R32	2.2meg			
R33	100K			
R34	470K			
R35	2200Ω			
R36	240K			Note 3
R37	2.4Ω			Note 3
R38	22K			
R39	470K			
R40	2200Ω			
R41	4700Ω			
R42	1000Ω	2		
R43	10K	1		
R44	220K			
R45	180Ω			
R46	2.2meg			
R47	470K			

Note 1. Some versions may use 47K in this application.
Note 2. Some versions may use 180Ω in this application.
Note 3. Some versions may use 220K in this application.

COILS (RF-IF)

ITEM No.	USE	TONFUNK PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	FM Antenna Coil						
L2	FM Antenna Trans.						
L3	RF Choke						Wound on 10Ω Resistor
L4	FM RF Coil						
L5	FM Osc. Coil						
L6	RF Choke						1.4 Microhenries
L7	IF Trap Coil						

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (cont)

ITEM No.	USE	TONFUNK PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L8	AM Antenna Trans.						
L9	Loop Stick						
L10	AM Osc. Coil						
L11	AM Osc. Coil						
L12	IF Trap Coil						
L13	1st FM IF						
L14	1st AM IF and 2nd FM IF Assem.						
L15	FM Ratio Det. and 2nd AM IF Assem.						

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	TONFUNK PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V ② .47A	240V ② .072A	6.3V ② 3.2A	BVN118B						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	TONFUNK PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	17K	6-8Ω	A123							

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	TONFUNK PART No.	QUAM PART No.	NOTES
SP1	6" X 8½"	PM	6-8Ω	P1521		
SP2	3"	Electrostatic		LSH75K		
SP3	3"	Electrostatic		LSH75K		
SP4	3"	Electrostatic		LSH75K		

SELENIUM RECTIFIER

ITEM No.	RATING CURRENT (Measured)	TONFUNK PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	NOTES
M1	.068A	B250C75		60-9150 ①		① Two required.

FUSES

ITEM No.	TYPE	RATING	TONFUNK PART No. FUSE	TONFUNK PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M2		.7A 250V						

MISCELLANEOUS

ITEM No.	PART NAME	TONFUNK PART No.	NOTES
M3	Dial Lamp		
M4	Dial Lamp		
M5	Tuning Cap.		AM, 2 Gang (Ant. 12-555mmf, Osc. 15-550mmf)
M6	Tuning Cap.		FM, 2 Gang
M7	Switch		Piano Keyboard (Slide Type)
M8	Switch		Power On-Off (Toggle Type)-Part of Keyboard Assembly
M9	Switch		Orchestra, Jazz, Voice (Slide Type)

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

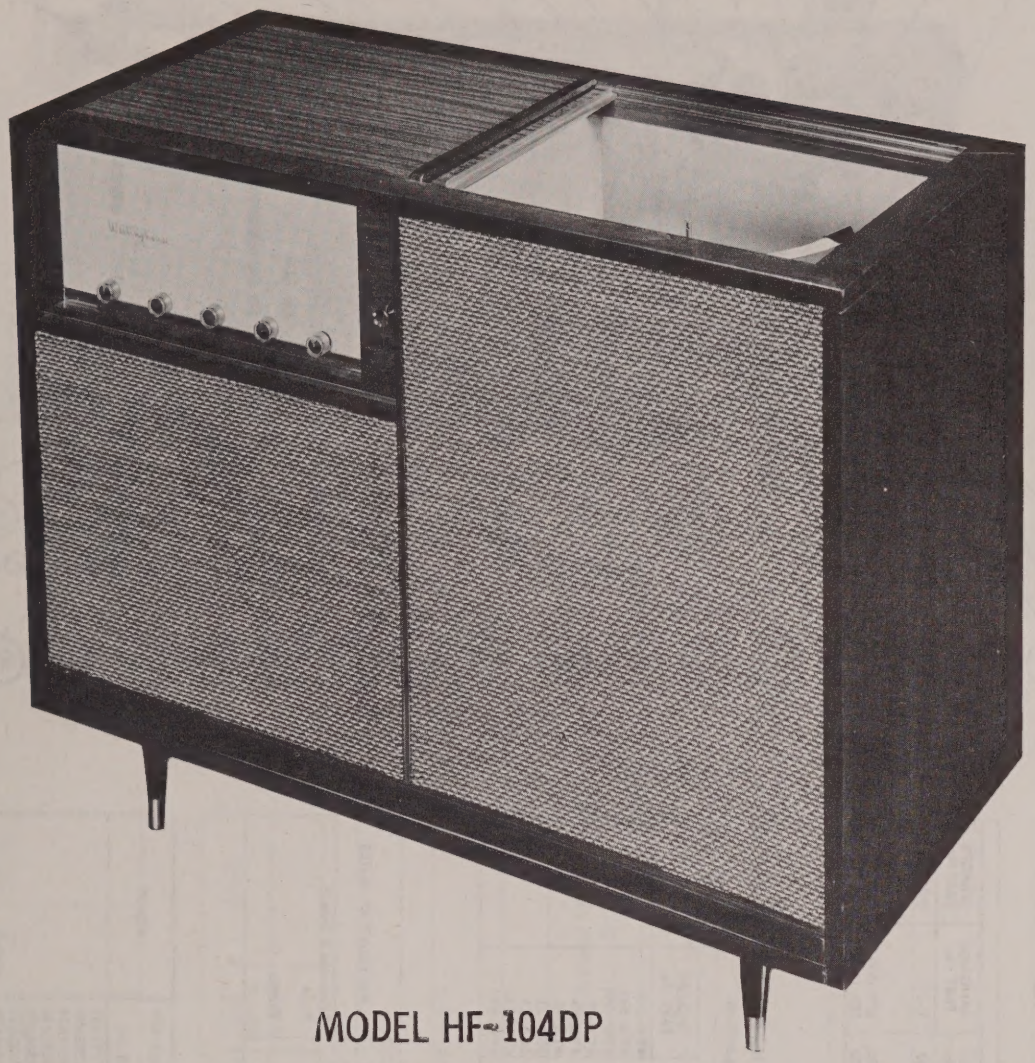
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT* Folder

*TRADE MARK

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

WESTINGHOUSE MODELS HF-104DP, HF-105DP, HF-106DP, HF-117DP, HF-118DP, HF-119DP (Ch. V-2501-1)



MODEL HF-104DP

WESTINGHOUSE MODELS HF-104DP, HF-105DP, HF-106DP, HF-117DP, HF-118DP, HF-119DP (Ch. V-2501-1)

TRADE NAME	Westinghouse Models HF-104DP, HF-105DP, HF-106DP, HF-117DP, HF-118DP, HF-119DP (Ch. V-2501-1)
MANUFACTURER	Westinghouse Electric Corp., TV-Radio Div., Metuchen, N. J.
TYPE SET	AC Operated Phono Amplifier with 4 Speed Automatic Record Changer
TUBES (Five)	Types 12AU6 1st AF Amplifier, 12AX7 2nd AF Amp. -Phase Inv., (2) 6L6GB Output, 5U4GB Rectifier
POWER SUPPLY	105-120 Volts AC-60 Cycle RATING .94 Amp. @ 117 Volts AC (95 Watts)

FOR SERVICE INFORMATION ON RECORD CHANGER—SEE V-M MODEL 1200A—PHOTOFACT SET 353 FOLDER 16 OR RECORD CHANGER MANUAL RC-10.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

WESTINGHOUSE
MODEL HF-104DP (Ch. V-2501-1)

ITEM No.	USE	TYPE	NOTES
V1	1st AF Amplifier	12AU6	
V2	2nd AF Amp. -Phase Inv.	12AX7	
V3	Output	6L6GB	
V4	Output	6L6GB	
V5	Rectifier	5U4GB	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	Westinghouse PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲ 40	400	218V036H01	AFH3-45-25	C0365	FP377.6	TMT-193	T-175	TVL-3791
B	■ 60	350				TC72			
C	▲ 10	300							
C2	4	50NP	218V035H01	NP-PRS50V4	BBR8-150† BBR8-150†	TC41 † TC41	TD-8-150† TD-8-150†	MT-1508 † MT-1508	R2415*

† Connect Negative Leads Together
* Non Catalog Item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	Westinghouse PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C3	.15	400	210V011A54	P488N-15		CUB4P15	GEM-4015	4TM-P15	
C4	.047	400	210V054A73	P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C5	.0047	600		P688N-0047	D6-472	CUB6D47	GEM-6247	6TM-D47	①
C6	.01	400	210V051A03	P488N-01	D6-103	CUB4S1	GEM-411	4TM-S1	
C7	.01	400	210V051A03	P488N-01	D6-103	CUB4S1	GEM-411	4TM-S1	
C8	.01	400	210V051A03	P488N-01	D6-103	CUB4S1	GEM-411	4TM-S1	
C9	100	1000	213V181H01		MD-101	L10T1		5GA-T1	
C10	100		215V101A01	DI-0001	DD-101	L10T1	UC-531	5GA-T1	
C11	.047	600	210V024A73	P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	
C12	.047	600	210V011A54	P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	

①Some versions may use .01mfd in this application (Part # 210V021A03)

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	Westinghouse PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	1meg	½	270V049H01				PP16A	Loudness & Switch
R2A	1meg	½	270V048H01	B-69	A47-1meg-S	Q11-137	U54	Bass
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R3A	1meg	½	270V048H02	B-69	A47-1meg-S	Q11-137	U54	Treble
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	

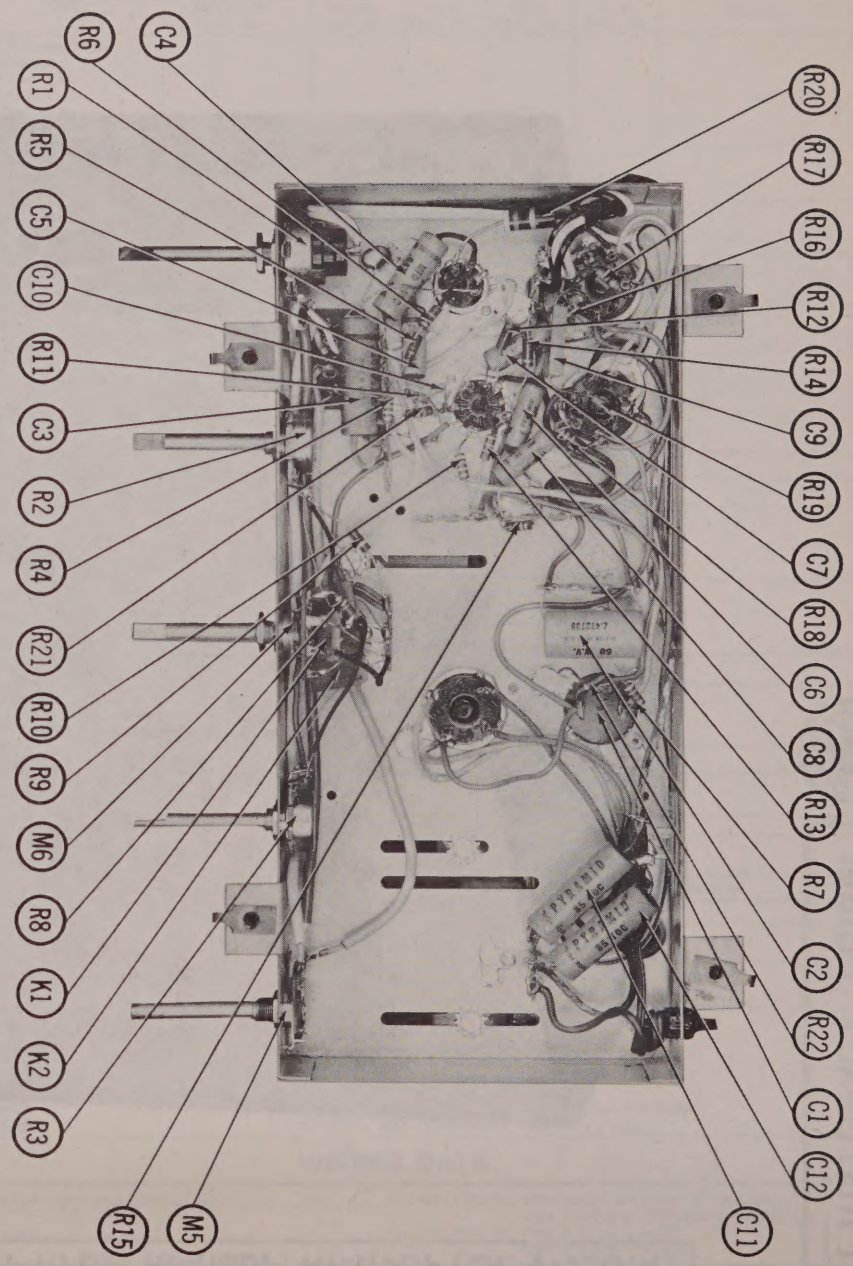
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	Westinghouse PART No.	NOTES
R4	470K		250V224A74	
R5	1000Ω		250V221A02	
R6	180K		250V221A84	
R7	4700Ω		250V224A72	
R8	180K		250V221A84	Note 1
R9	100K		250V231A04	
R10	470K		250V224A74	
R11	6800Ω		250V226A82	
R12	1meg		250V231A05	
R13	68K		250V226A83	
R14	2200Ω		250V222A22	
R15	68K		250V226A83	
R16	470K		250V234A74	
R17	27Ω		250V222A70	
R18	470K		250V234A74	
R19	27Ω		250V222A70	
R20	47Ω	2	250V424A70	Note 2.
R21	68K		250V226A83	
R22	1500Ω		250V221A52	

Note 1. Not used in some versions.
Note 2. Some versions use ②100Ω 1 watt in this application.

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
				Westinghouse PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
	PRI.	SEC. 1	SEC. 2							
T1	117V @.94A	520VCT @.150A	5V @2.8A	410V008H01	P9208①			PC8405①		
	SEC. 3	SEC. 4	SEC. 5							
	6.3V @2.4A									

①Rotate 90° on chassis and use slotted chassis holes

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	Westinghouse PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	4400Ω CT	14Ω Tap @ 6Ω	430V050H01				A-3830	22S74	S-57Z	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	Westinghouse PART No.	QUAM PART No.	
SP1	15"	PM	14Ω	570V034H01	15A10LZ14	Parallel and phase SP2, SP3 and SP4
SP2	7"	PM	12-14Ω	570V033H01	7A21Z12	
SP3	4"	PM	12-14Ω	570V035H01	4A1Z14.5	
SP4	4"	PM	12-14Ω	570V035H01	4A1Z14.5	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	Westinghouse PART No.	REPLACEMENT DATA
K1	Equalizer Net.	680mmf, 4700mmf 82K, 22K	219V018H01①	
K2	Tone Comp.	2200mmf, 100mmf, 2200mmf 22000mmf 150K, 10K	219V021H01	

①Late production versions use Part # 219V018H02

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	Westinghouse PART No.	ASTATIC PART No.		JENSEN PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	MOUNT	
M1		89-TB				

PHONO NEEDLE

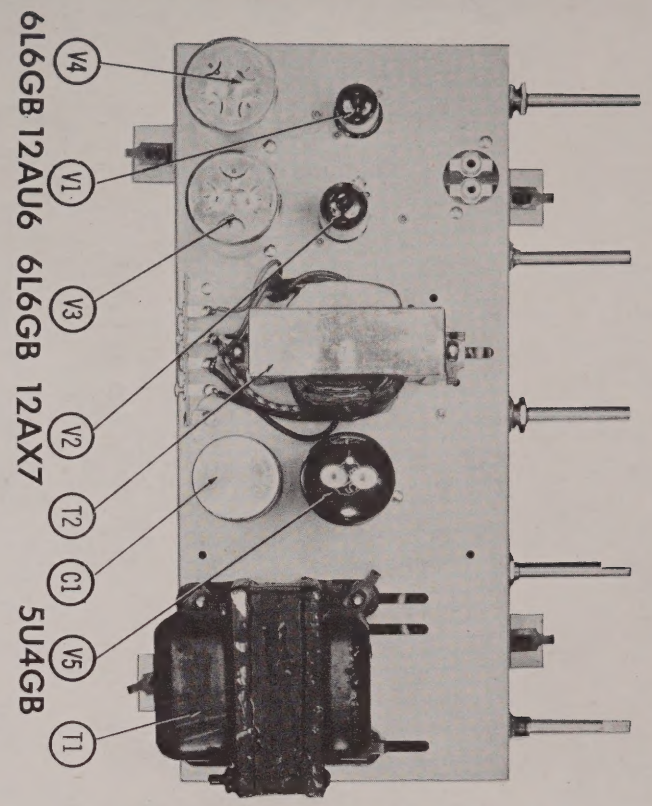
(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	Westinghouse PART No.	JENSEN PART No.	WALCO PART No.	
M2		† S-61 or †♦ S-61SD or ♦ S-61D	† W-77TPS or †♦ W-77DS or ♦ W-77TPD	† Jewel ♦ Diamond

MISCELLANEOUS

ITEM No.	PART NAME	Westinghouse PART No.	NOTES
M3	Lamp	756V501H01	#1847, Jewel
M4	Lamp	756V501H04	#1810, Phono Compartment
M5	Switch	756V025H01	Selector, 2-Position Rotary Wafer Type
M6	Switch	756V026H01	Compensation, 4-Position, Rotary Wafer Type

CHASSIS—TOP VIEW



CABINETS & CABINET PARTS

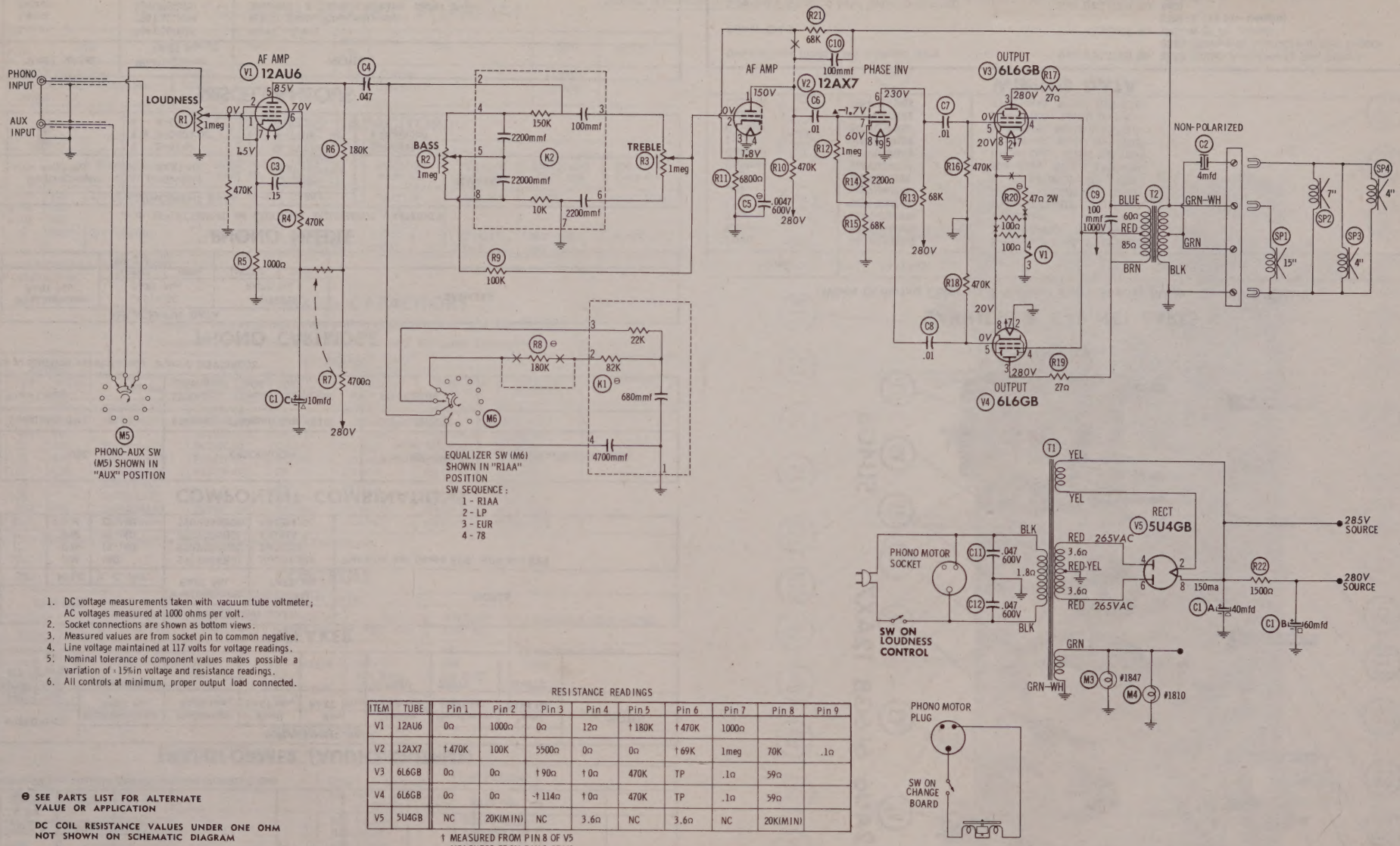
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	550V035H04	Loudness, Push-Push Off-On
Knob	550V035H05	Bass, Treble, Input Selector
Knob	550V035H06	Equalizer
Leg	518V001H04	Model HF104DP, HF117DP
Leg	518V001H05	Model HF105DP, HF118DP
Leg	518V001H06	Model HF106DP, HF119DP
Cabinet	516V049H01	Mahogany, Model HF104DP
Cabinet	516V049H02	Limed Oak, Model HF105DP
Cabinet	516V049H03	Fruitwood, Model HF106DP
Cabinet	516V057H01	Mahogany, Model HF117DP
Cabinet	516V057H02	Limed Oak, Model HF118DP
Cabinet	516V057H03	Fruitwood, Model HF119DP

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

FOLDER 15
WESTINGHOUSE
MODEL HF-104DP (Ch. V-2501-1)



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AU6	0Ω	1000Ω	0Ω	12Ω	†180K	†470K	1000Ω		
V2	12AX7	†470K	100K	5500Ω	0Ω	0Ω	†69K	1meg	70K	.1Ω
V3	6L6GB	0Ω	0Ω	†90Ω	†0Ω	470K	TP	.1Ω	59Ω	
V4	6L6GB	0Ω	0Ω	▲114Ω	†0Ω	470K	TP	.1Ω	59Ω	
V5	5U4GB	NC	20K(MIN)	NC	3.6Ω	NC	3.6Ω	NC	20K(MIN)	

† MEASURED FROM PIN 8 OF V5
▲ MEASURED FROM PIN 8 OF V2
NC NO CONNECTION
TP TIE POINT

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958